Honeywell Portable Gas Detection

BW Technologies by Honeywell

Honeywell

BW Technologies & Honeywell Analytics

Honeywell

- Shared mission of providing innovative gas detection technology while creating the safest possible work environments
- HA and BW are one premier line of business

BW Technologies by Honeywell

Honeywell Life Safety Family

Honeywell

Life Safety – Protecting People & Saving Lives **17,000 Employees**

ACS Businesses

- **Life Safety**
- **Process Solutions**
- **Building Solutions**
- **Security**
- **Scanning & Mobility**
- **Environmental Combustion & Controls**
- **Sensing & Controls**

A multifaceted and diversified portfolio focused on innovation and technology

Fire Control Systems

NOTIFIER
Gamewell
FIRE-LITE ALARMS by Honeywell
FCI FIRE CONTROL INSTRUMENTS
SILENT KNIGHT
MORLEY IAS FIRE SYSTEMS by Honeywell
BARDIC by Honeywell

Sensors and Actuating Devices

SYSTEM SENSOR advanced ideas. advanced solutions.
ENVITEC by Honeywell
GENT by Honeywell

Safety Products

SPERIAN
NORTH by Honeywell
FIBRE-METAL by Honeywell
SERVUS by Honeywell
XTRATUF
SALISBURY by Honeywell
MUCK
RINGER
Honeywell First Responder Products

Gas Detection Honeywell Analytics

Honeywell
BW Technologies by Honeywell
SPERIAN

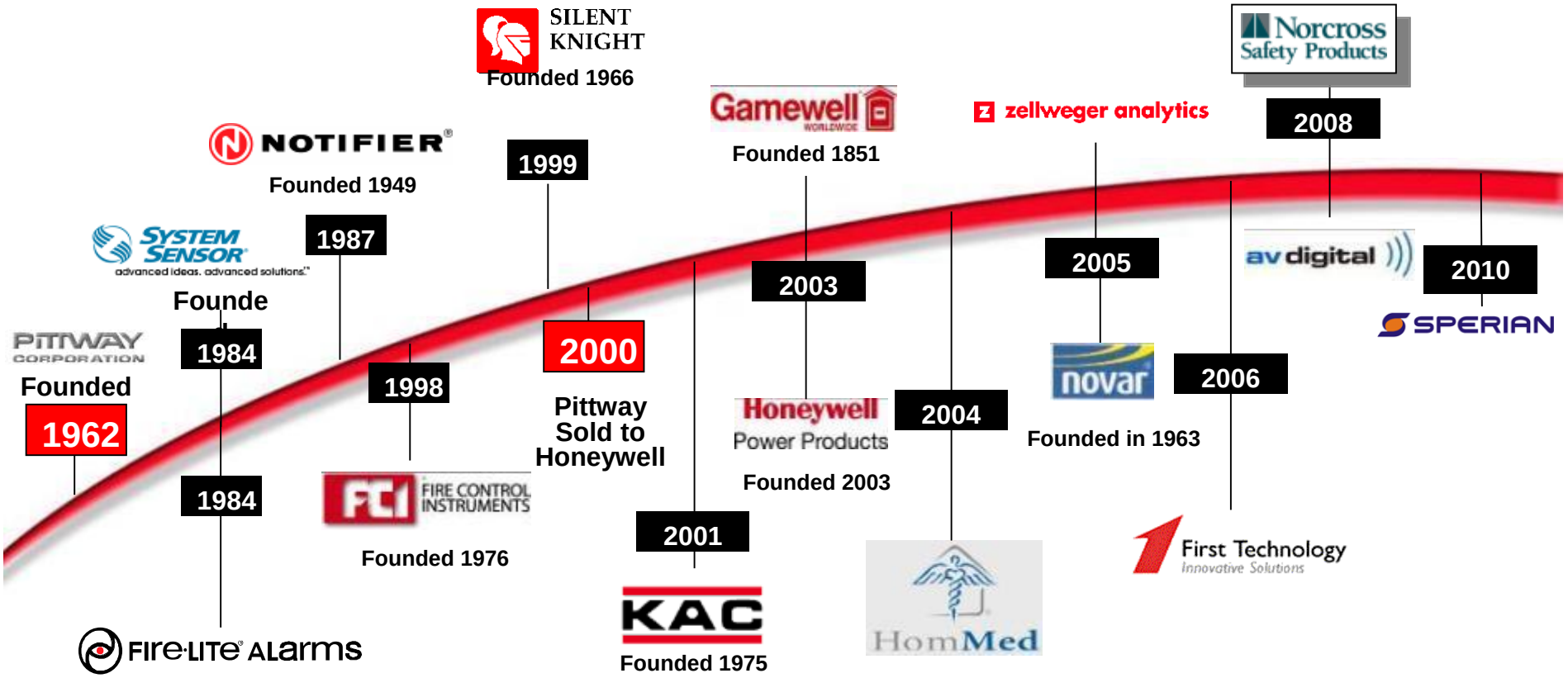
HomMed

ACKERMANN by Honeywell

BW Technologies by Honeywell

Life Safety

Honeywell



BW Technologies by Honeywell

Honeywell Analytics Lines of Business

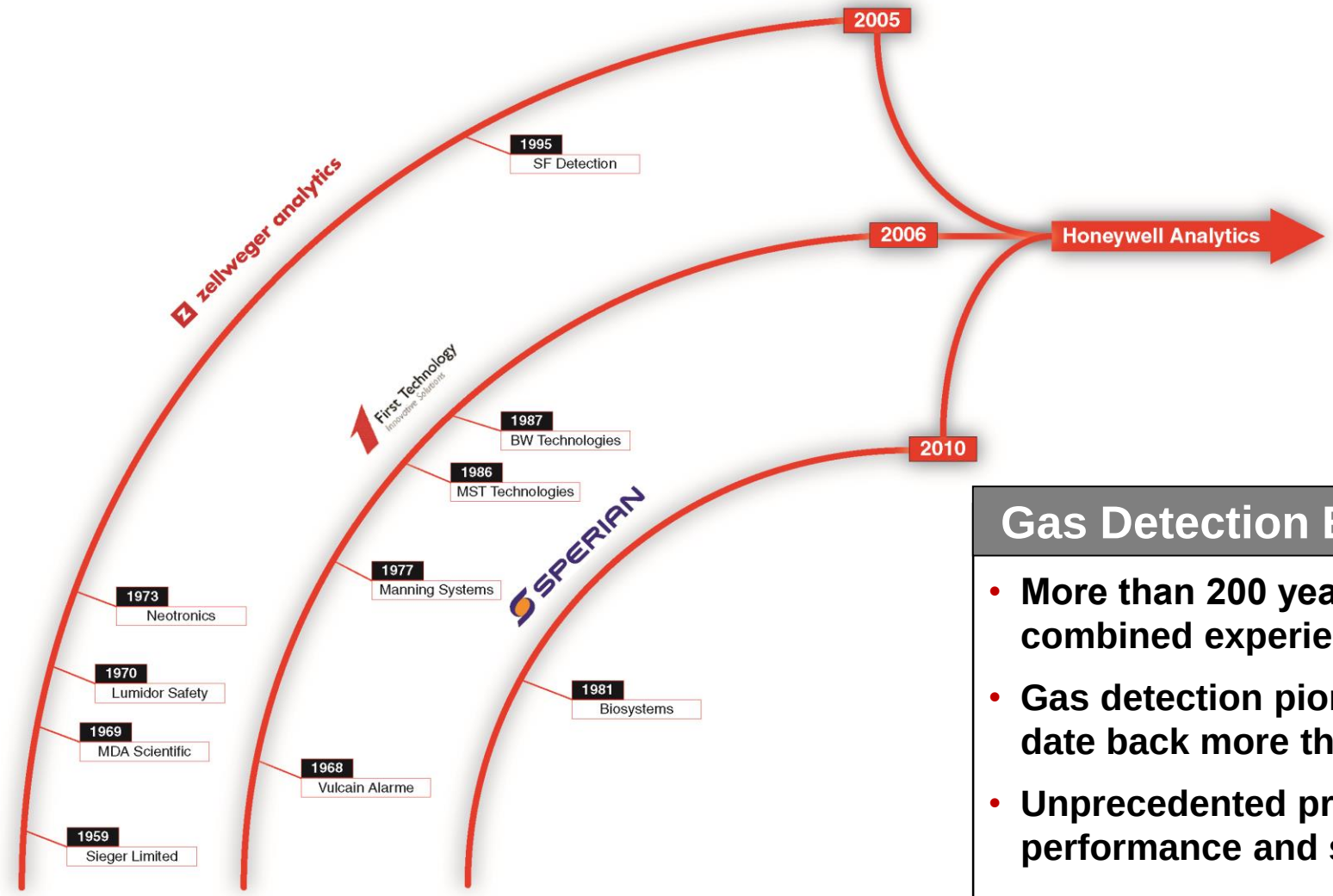
Honeywell

Four Diverse Lines of Business Across Many Vertical Markets

Industrial Fixed	Commercial Fixed	Portables	High-Tech
Applications			
• Oil and gas • Petrochemicals • Special chemicals • Industrial refrigeration • Water treatment • Plastics and fibers • Pulp and printing • Agriculture • Manufacturing	• Parking structures • Chillers • Grocery stores • Ice arenas • Commercial kitchens • Mechanical rooms • Office towers • Commercial buildings • Shopping centers • Swimming pools • Schools and laboratories	• Underground utility and electricity ducts • Boiler rooms • Post-fire sites • Sewers • Industrial plants • Industrial hygiene • First responder teams • Remote fleets	•Semiconductor manufacturing and nanotechnology • Aerospace propulsion and safety • Specialty chemicals • Research laboratories • Emergency response

A History of Proven Success

Honeywell



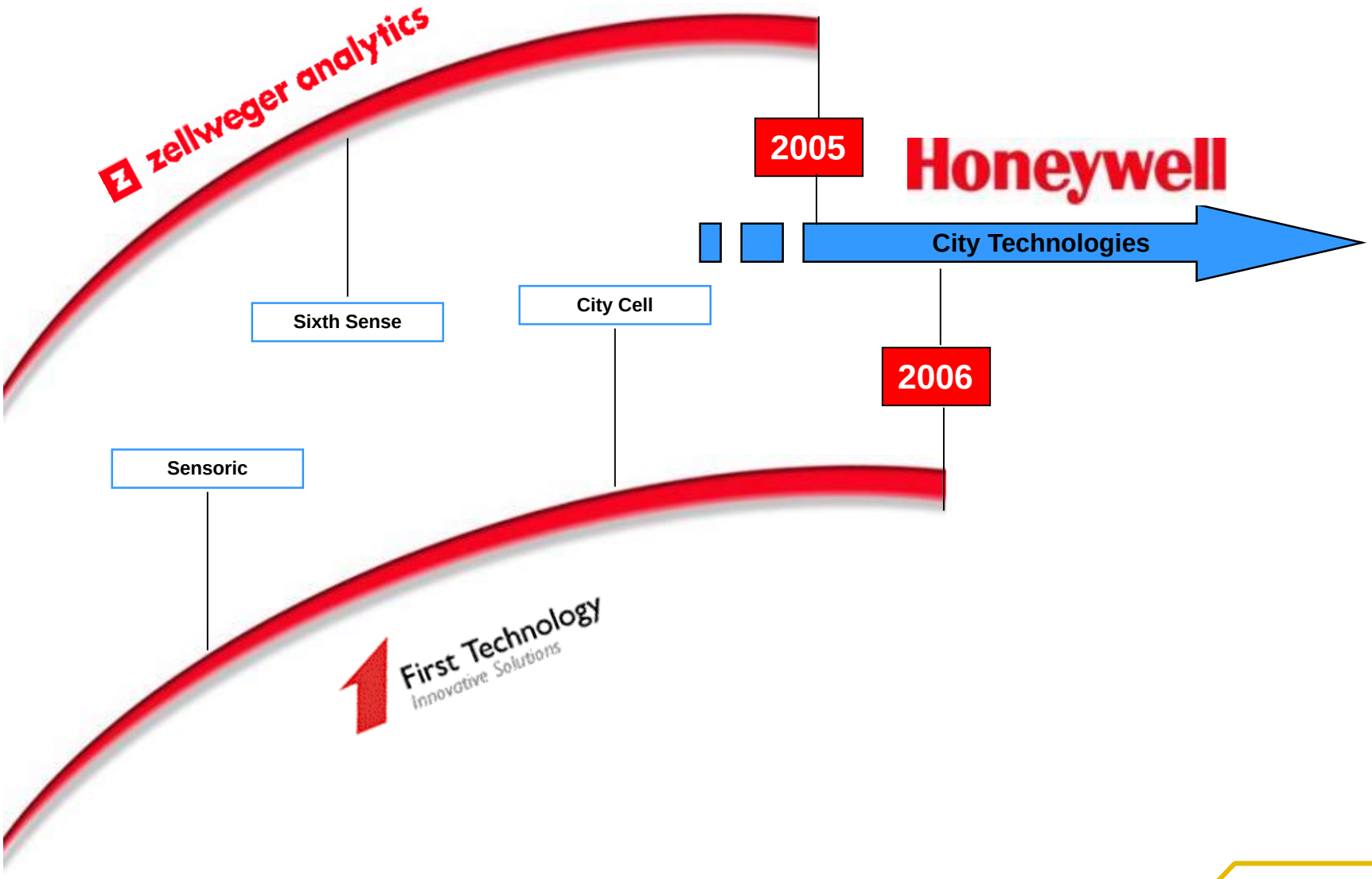
Gas Detection Expertise

- More than 200 years' combined experience
- Gas detection pioneers – date back more than 50 years
- Unprecedented product performance and stability

BW Technologies by Honeywell

Life Safety – Sensor Cells

Honeywell



BW Technologies by Honeywell

Electrochemical Cell Manufacture

Honeywell

Honeywell designs and manufactures most of its sensing technology

World's biggest cell manufacturer

Advanced robotic manufacturing plant ensures quality and keeps costs to a minimum

Flexibility to meet market demands

All manufacturing history stored to ISO 9001 processes

BW Technologies by Honeywell

Portable Products

Honeywell

World's Most Advanced Family of Gas Detection Products

GasAlertQuattro

Impact Pro

Rig Rat

GasAlert Max XT II

GasAlert Extreme

Gas Alert MicroClip XT

GasAlert Micro5

MicroDock II

BW Technologies by Honeywell

Gas Detector Selection Criteria

Honeywell

Feature	Benefit
Ease of Use	One button operation provides simple interface with the detector
Ruggedness and Reliability	Shock resistant design with superior water resistance, IP67; compact, lightweight, ergonomic design
Number of sensors required	Ability to detect and display a number of gas readings simultaneously

BW Technologies by Honeywell

Gas Detector Selection Criteria

Honeywell

Feature	Benefit
Total number of sensors available	Maximum amount of oxygen, combustible and toxic gases detectable
Sensor combinations	Versatility to detect oxygen, combustible gases, VOCs and wide range of toxic gas hazards
Docking station option	Ability to easily maintain a fleet of detectors; ease of calibration, bump testing and record keeping; provide objective evidence for investigations

BW Technologies by Honeywell

Gas Detector Selection Criteria

Honeywell

Feature	Benefit
Integrated or external pump	Ease of sampling remote atmospheres
Display	Easy to read; display all detectable gases simultaneously
Alarms	Combination of audible, visual and vibrating alarms; TWA, STEL, and instantaneous

Gas Detector Selection Criteria

Honeywell

Feature	Benefit
Battery life/versatility	Rechargeable batteries – best to worst – lithium polymer, nickel metal hydride, nickel cadmium, lead acid. Lithium polymer provides superior performance with longer run time and quick charge cycle. Alkaline capability offers additional up time.
Datalogging	Evidence of detector use and maintenance; often used like black box on an aircraft; becoming standard feature

Gas Detector Selection Criteria

Honeywell

Feature	Benefit
Cost of ownership	Initial cost of equipment; replacement parts; gas use; warranty; typical life expectancy 2 to 5 years
Service	Convenient locations and fast turnaround are important consideration
Training	Variety of training media; hands on; webinar; CD; etc
Knowledge of vendor	Provide confident, correct information to aid selection process; after sales assistance and service

Wide Range of Industries & Users

Honeywell

- Transportation
- Steel mills
- HVAC contracting
- Construction
- Brewing
- Shipping
- Oil & Gas
- Petrochemical
- Power stations
- Grain storage
- Remediation

- Chemical plants
- Refineries
- Tunnelling
- Waste water treatment
- Telecommunications
- Utilities (water, electric etc)
- Pulp and paper
- Fire Dept.
- Government agencies

BW Technologies by Honeywell

Some of Our Customers…

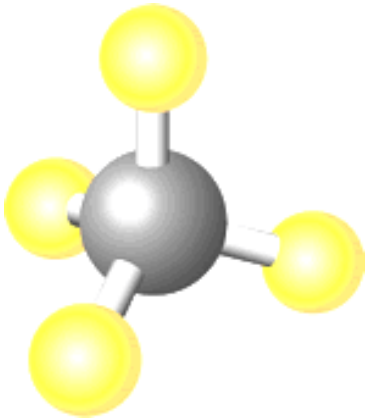
Honeywell

BW Technologies by Honeywell

Some Common Gas Hazards

Honeywell

- Toxic and flammable gas hazards that present potentially life threatening hazardous atmospheres during confined space entry and general process safety applications
  - Oxygen (O_2)
  - Combustible gases (LEL)
  - Carbon monoxide (CO)
  - Hydrogen sulfide (H_2S)
  - Methane (CH_4)
  - Carbon dioxide (CO_2)
  - Sulfur dioxide (SO_2)
  - Hydrogen cyanide (HCN)
  - Chlorine (Cl_2)
  - Nitrogen dioxide (NO_2)
  - Ammonia (NH_3)
  - Chlorine dioxide (ClO_2)
  - Ozone (O_3)
  - Nitric oxide (NO)
  - Phosphine (PH_3)
  - Ethylene oxide (ETO)
  - Volatile organic compounds



BW Technologies by Honeywell

GasAlertMicro 5 Series

BW Technologies by Honeywell

Honeywell

GasAlertMicro 5 Series

Honeywell

- Standard unit includes
  - Monitor as specified
  - Sensors as specified
  - Sensor compartment cover for diffusion operation
  - Calibration adapter and hose
  - Quick reference guide
  - Interactive training and technical documentation CD
  - Integral concussion-proof boot
  - “Hot swappable” alkaline battery tray with set of 3 AA alkaline batteries
  - Optional lithium polymer battery pack

BW Technologies by Honeywell

GasAlertMmicro 5 Sensor Position

Honeywell

Sensor Placement

- Oxygen Sensor (Red)
  - Dummy sensor (empty)
  - O_2
- Combustible Sensor (Green)
  - Dummy sensor (empty)
  - LEL (combustible)
- Interchaneable Toxic 1 Sensor (Blue)
  - Dummy sensor (empty)
  - H_2S
  - CO
  - SO_2
  - Cl_2
  - ClO_2
  - NH_3
  - PH_3
  - HCN
  - NO_2
  - O_3
- Interchaneable Toxic 2 Sensor (Yellow)
  - Dummy sensor (empty)
  - COSH -TwinTox (CO/H_2S sensor
  - H_2S
  - CO
  - SO_2
  - Cl_2
  - ClO_2
  - NH_3
  - PH_3
  - HCN
  - NO_2
  - O_3

BW Technologies by Honeywell

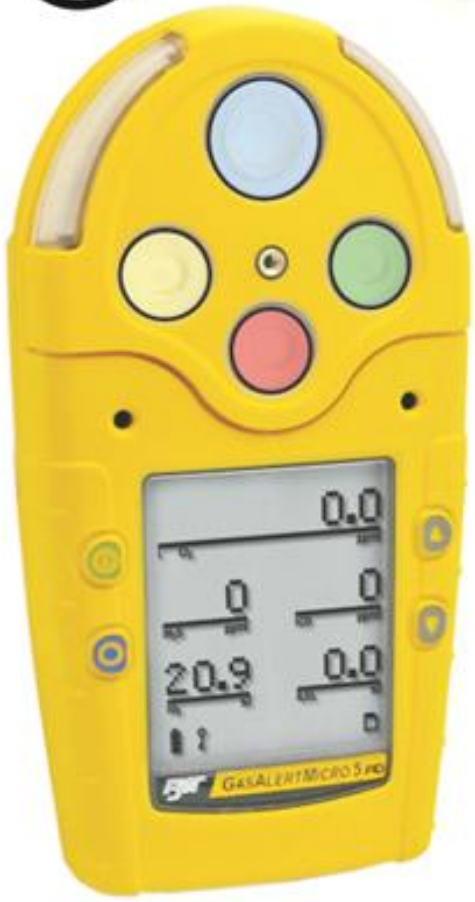
GasAlertMicro 5 PID Sensor Position

Honeywell

GasAlertMicro 5 PID

Sensor Placement

- Oxygen Sensor (Red)
  - Dummy sensor (empty)
  - O_2
- Combustible Sensor (Green)
  - Dummy sensor (empty)
  - LEL (combustible)
- Interchaneable Toxic 1 Sensor (Blue)
  - Dummy sensor (empty)
  - PID
- Interchaneable Toxic 2 Sensor (Yellow)
  - Dummy sensor (empty)
  - COSH -TwinTox (CO/H_2S sensor
  - H_2S
  - CO
  - SO_2
  - Cl_2
  - ClO_2
  - NH_3
  - PH_3
  - HCN
  - NO_2
  - O_3



BW Technologies by Honeywell

GasAlertMicro 5 IR sensor positions

Honeywell

GasAlertMicro 5 IR

Sensor Placement

- Oxygen Sensor (Red)
  - Dummy sensor
  - O_2
- Combustible Sensor (Green)
  - Dummy sensor
  - LEL (combustible)
- Interchangeable Toxic 1 Sensor (Blue)
  - Dummy sensor (empty)
  - CO_2 (Infrared Carbon Dioxide)
- Interchangeable Toxic 2 Sensor (Yellow)
  - Dummy sensor (empty)
  - COSH -TwinTox (CO/H_2S sensor)
  - H_2S
  - CO
  - SO_2
  - NH_3
  - O_3

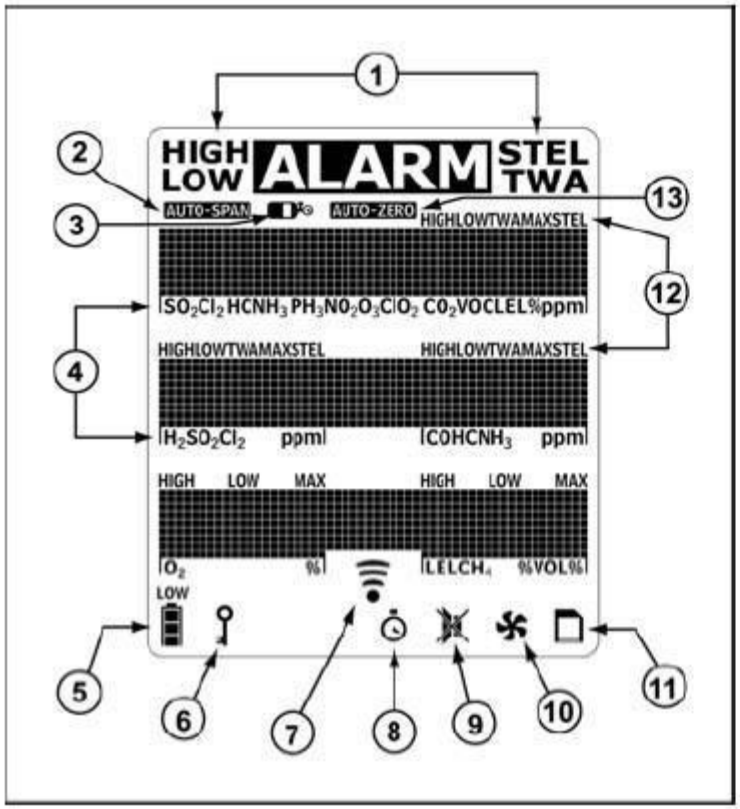
M5IR has a limited compliment of toxic sensors

BW Technologies by Honeywell

GasAlertMicro 5 Display

Honeywell

Display Elements



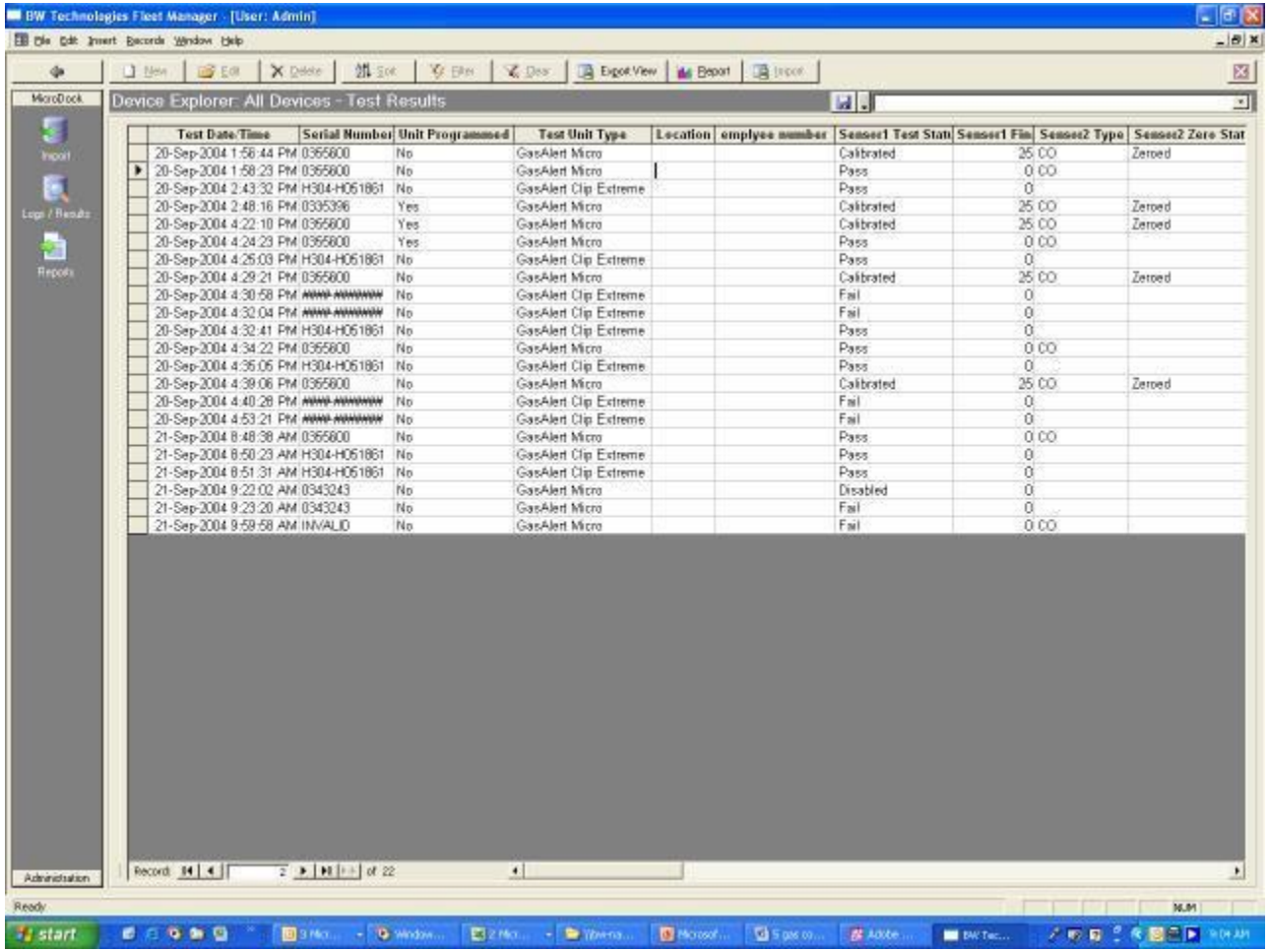
Item	Function
①	Alarm condition
②	Automatically span sensor
③	Gas cylinder
④	Gas identifier bars
⑤	Battery life indicator
⑥	Pass code lock
⑦	Data transmission (future use)
⑧	Clock
⑨	Stealth mode
⑩	Optional pump indicator
⑪	Optional datalogger card indicator
⑫	Alarm condition (low, high TWA, STEL, or multi-gas) or view TWA, STEL, and maximum gas exposures
⑬	Automatically zero sensor

BW Technologies by Honeywell

Fleet Manager Datalogging Software

Honeywell

- Includes all functionality of EDM
- “Standard” Fleet Manager software comes standard with datalogging Micro 5 instruments
- “Deluxe” Fleet Manager comes with MD2

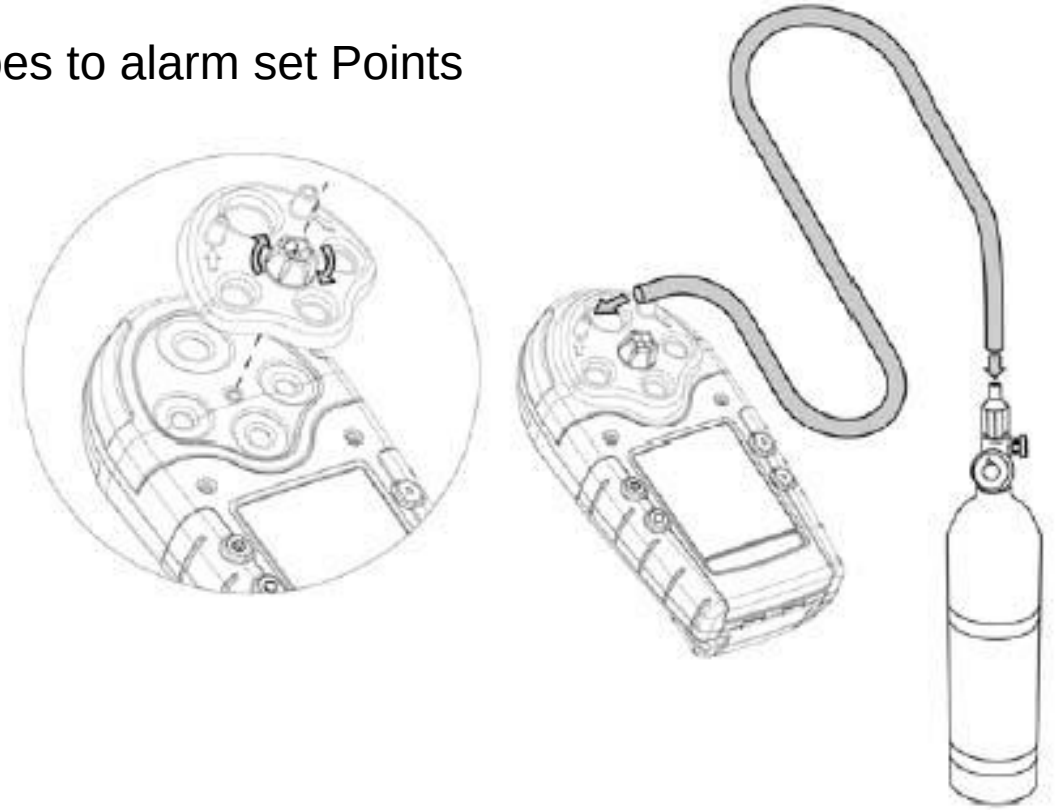

BW Technologies Fleet Manager - [User: Admin]
Device Explorer: All Devices - Test Results
Test Date/Time | Serial Number | Unit Programmed | Test Unit Type | Location | employee number | Sensor1 Test Stat | Sensor1 Fin | Sensor2 Type | Sensor2 Zero Stat
20-Sep-2004 1:56:44 PM 0365800 | No | GasAlert Micro | Calibrated | 35 CO | Zeroed
20-Sep-2004 1:58:23 PM 0365800 | No | GasAlert Micro | Pass | 0 CO
20-Sep-2004 2:43:32 PM H304-H061861 | No | GasAlert Clip Extreme | Pass | 0
20-Sep-2004 2:48:16 PM 0335396 | Yes | GasAlert Micro | Calibrated | 35 CO | Zeroed
20-Sep-2004 4:22:10 PM 0365800 | Yes | GasAlert Micro | Calibrated | 35 CO | Zeroed
20-Sep-2004 4:24:23 PM 0365800 | Yes | GasAlert Micro | Pass | 0 CO
20-Sep-2004 4:25:03 PM H304-H061861 | No | GasAlert Clip Extreme | Pass | 0
20-Sep-2004 4:29:21 PM 0365800 | No | GasAlert Micro | Calibrated | 35 CO | Zeroed
20-Sep-2004 4:30:58 PM ##### ######## | No | GasAlert Clip Extreme | Fail | 0
20-Sep-2004 4:32:04 PM ##### ######## | No | GasAlert Clip Extreme | Fail | 0
20-Sep-2004 4:32:41 PM H304-H061861 | No | GasAlert Clip Extreme | Pass | 0
20-Sep-2004 4:34:22 PM 0365800 | No | GasAlert Micro | Pass | 0 CO
20-Sep-2004 4:35:05 PM H304-H061861 | No | GasAlert Clip Extreme | Pass | 0
20-Sep-2004 4:39:06 PM 0365800 | No | GasAlert Micro | Calibrated | 35 CO | Zeroed
20-Sep-2004 4:40:28 PM ##### ######## | No | GasAlert Clip Extreme | Fail | 0
20-Sep-2004 4:53:21 PM ##### ######## | No | GasAlert Clip Extreme | Fail | 0
21-Sep-2004 8:48:38 AM 0365800 | No | GasAlert Micro | Pass | 0 CO
21-Sep-2004 8:50:23 AM H304-H061861 | No | GasAlert Clip Extreme | Pass | 0
21-Sep-2004 8:51:31 AM H304-H061861 | No | GasAlert Clip Extreme | Pass | 0
21-Sep-2004 9:22:02 AM 0343243 | No | GasAlert Micro | Disabled | 0
21-Sep-2004 9:23:20 AM 0343243 | No | GasAlert Micro | Fail | 0
21-Sep-2004 9:58:58 AM INVALID | No | GasAlert Micro | Fail | 0 CO
MicroDock
Import
Logs / Results
Reports
Administration
Export View
Report
Record: of 22
Ready
start

BW Technologies by Honeywell

GasAlertMicro 5 Calibration & Testing

Honeywell

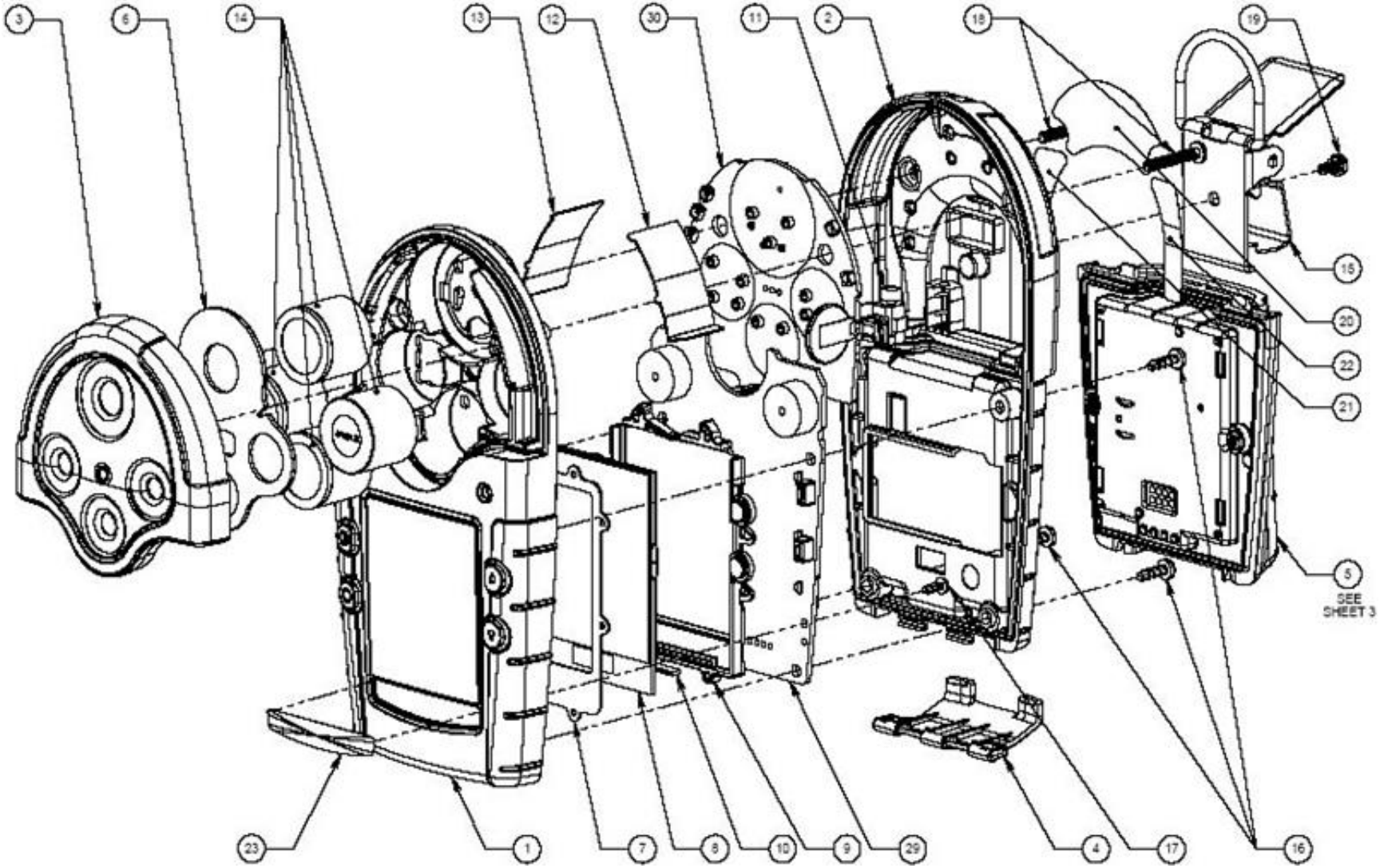
1. Put instrument into Cal mode.
2. Auto Zero
3. Auto Span
4. Apply Gas
5. Instrument beeps (4) & goes to alarm set Points
6. Remove Gas
7. Adjust Alarm Set points
8. Enter CAL Due time
9. End Of Calibration



BW Technologies by Honeywell

GasAlertMicro5 Components

Honeywell



BW Technologies by Honeywell

New Pump

Honeywell

- New pump with built in particulate filtration

BW Technologies by Honeywell

GasAlertMicro 5 Programming Tips

Honeywell

- If you do not press any pushbuttons within 20 seconds of entering the user options menu, the detector returns to normal operation

BW Technologies by Honeywell

GasAlertMicro 5 Setup Options

Honeywell

Language	*Controls the language used for instrument status messages.*	*English French German Spanish Portuguese*	*English*
Automatic Backlight	*Allows or prevents the instrument from automatically activating the backlight in dark areas.*	*Enabled Disabled*	*Auto-backlight Enabled*
Confidence Beep	*Causes the unit to emit a beep once each few seconds.*	*Enabled Disabled*	*Beep Disabled*
Force Calibration For Overdue Unit	*Prevents the user from using an instrument that is over due for calibration until it is re-calibrated.[1]*	*Enabled Disabled*	*Forced Cal Disabled*
Calibration Due Lockout	*Prevents the user from using an instrument that is over due for calibration, unless the pass code is entered. [1]*	*Enabled Disabled*	*Pass Code Lock Disabled*

BW Technologies by Honeywell

GasAlertMicro 5 Setup Options

Honeywell

Latching Alarms	*Unit holds alarm-generating readings until OK is pressed.*	*Enabled Disabled*	*Latching alarms off*
Pass Code	*User can not access calibration or user options unless pass code is entered.*	*Enabled Disabled*	*Pass code lock disabled*
Safe Mode	*Unit shows "Safe" when gas readings are normal, and reverts to normal operation when gas is detected.[1]*	*Enabled Disabled*	*Safe off.*
Stealth Mode	*Unit shows "Stealth" when gas readings are normal, and numbers when gas is detected. Alarm LEDs and speakers are disabled.[2]*	*Enabled Disabled*	*Stealth off*
Individual Sensor Enable	*Allows the user to enable or disable an installed sensor.*	*Sensor on Sensor off*	*Varies by unit configuration*
Calibration Span Gas Setting	*Allows user to set the concentration of gas used for sensor calibration.*	*Varies by sensor Low limit: as low as possible High limit: nominal sensor range*	*Varies by sensor*
[1] "Safe" mode and "Stealth" mode are mutually exclusive and can not be used together.			

Technologies
by Honeywell

GasAlertMicro 5 Setup Options

Honeywell

STEL Period (toxics only)	*Sets STEL calculation interval.*	*5 to 15 minutes.*	*15 minutes.*
TWA Method	*Selects TWA calculation method OSHA = 8 hour rolling average ACGIH = continuous accumulation*	*OSHA ACGIH*	*OSHA*
Precision	*Sets precision of displayed reading.*	*Cl02 and O3: 0.1 ppm 0.01 ppm All others: 1 ppm 0.1 ppm*	*Lowest precision setting*
%-by-volume CH4	*Switches combustible sensor from %LEL measurement to %CH4 measurement.*	*Disabled Enabled*	*Disabled (measure %LEL)*

BW Technologies by Honeywell

GasAlertMicro 5 Setup Options

Honeywell

Automatic Calibration of O2 Sensor	*Controls automatic calibration of oxygen sensor on startup*	*Enabled Disabled*	*Auto-cal enabled*
Datalogger Interval	*Sets recording interval of logger*	*1 to 127 sec*	*5 sec*
Real Time Clock	*Sets internal clock*	*Jan 1, 2004 to Dec 31, 2099*	*Varies by target country*

BW Technologies by Honeywell

GasAlertMicro 5 LEL Correction Factors

Honeywell

Correction factors (LEL and PID only)	*Mathematical correction of sensor to correct sensitivity for targeted gases*	*LEL:*	*CF relative to:*
		Acetone *Benzene* *Butane* *Cyclohexane* *Ethanol* *Ethyl alcohol* *Gasoline* *Heptane* *Hexane* *Hydrogen* *Isobutylene* *Isopropylene* *Methyl ethyl ketone* *Methane* *Methanol* *Octane* *Pentane* *Propane* *Toluene* *Turpentine* *Custom (0 to 15.0)*	*Methane*

BW Technologies by Honeywell

GasAlertMicro 5 PID Correction Factors

Honeywell

Correction factors (LEL and PID only)	*Mathematical correction of sensor to correct sensitivity for targeted gases*	*PID:*	*CF relative to:*
		Acetaldehyne *Acetone* *Ammonia* *Benzene* *Butadiene* *Diesel fuel* *Ethanol* *Ethylene* *Gasoline* *Hexane* *Isobutylene* *JP-8 jet fuel* *Kerosene* *Methyl ethyl ketone* *Naptha* *Styrene* *Toluene* *Turpentine* *Vinyl chloride* *Xylene* *Custom (0 to 15.0)*	*Isobutylene*

BW Technologies by Honeywell

Technician Mode

Honeywell

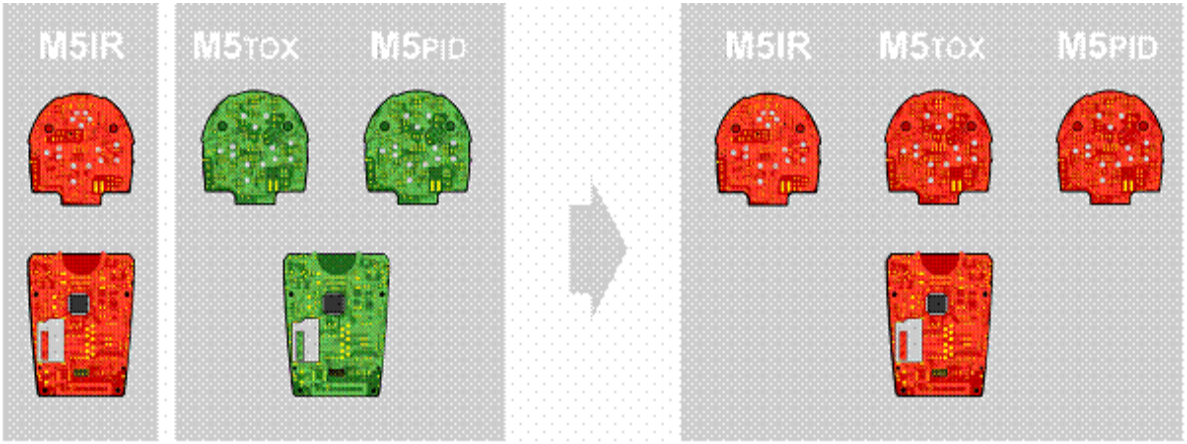
- Technician Mode:
  - Special button press to enter tech mode
  - Button press allows for
    - Hot swapping sensors
  - Not documented in quick reference guide only in manual

- Technician Mode Uses:
  - Indicate “hardware version” of the product as part of the displayed software version
  - Setup facility for defining or changing the sensor type and assign the sensor position
  - Initialization – reset the factory defaults on the device

GasAlertMicro 5 Convergence

Honeywell

Product:	*Pre-Convergence:*	*Post-Convergence:*
GasAlertMicro5	***Rev. SE1; year up to 8***	***Rev. from SE3; year from 8***
GasAlertMicro5-PID	***Rev. SK1; year up to 8***	***Rev. from SK3; year from 8***
GasAlertMicro5-IR	***Rev. SS1; years 7 and up to 8***	***Rev. from SS3; year from 8***



BW Technologies by Honeywell

Replacement Battery Considerations

Honeywell

- Batteries are not forward compatible
- Chargers are still universal
  - All Convergence M5, M5IR and M5PID are compatible with:
    - M5-BAT08(Lithium Polymer) AND M5-BAT0501(Alkaline)
  - Pre-Convergence M5IR detectors are compatible with:
    - M5-BAT08(Lithium Polymer) AND M5-BAT0501(Alkaline)
  - Pre-Convergent M5s are compatible with the :
    - M5-BAT07(Lithium Polymer) AND M5-BAT02(Alkaline)
  - Pre-Convergent M5PIDs are compatible with :
    - M5-BAT07(Lithium Polymer) AND M5-BAT02(Alkaline)

BW Technologies by Honeywell

GasAlert ClipExtreme

BW Technologies by Honeywell

Honeywell

GasAlert Extreme

Honeywell

Features

- High-contrast LCD shows real-time gas concentration
- LOW, HIGH ,TWA and STEL alarm set points
- Backlight : auto, in alarm only or STEALTH (none)
- Simple auto zero and auto calibration with diagnostics protection
- High-output 95dB audible alarm
- Wide-angled visual alarm bars
- Records and displays on demand TWA/ STEL and peak exposures to gas encountered
- Continuous instrument status advice

BW Technologies by Honeywell

GasAlert Extreme

Honeywell

Features (cont'd)

- Internal clock to manage calibration dates.
- "Calibration Due" on start up
- Stealth mode - On/Off
- Latching alarms - On/Off
- Settable STEL period - 5-15 minutes
- Backlight - On/Off, alarm only
- Password Function - On/Off
- Low, high, TWA and STEL alarms
- Multi language and data logging units available

BW Technologies by Honeywell

Available Models

Honeywell

GasAlert Extreme	Measuring Range	Order Number
H_2S	0-100 ppm	GAXT-H-DL
H_2S (extended range)	0-500 ppm	GAXT-H-2-DL
CO	0-1000 ppm	GAXT-M-DL
CO (H_2 resistant)	0-1000 ppm	GAXT-M2-DL
O_2	0-30.0%	GAXT-X-DL
SO_2	0-100 ppm	GAXT-S-DL
Cl_2	0-50.0 ppm	GAXT-C-DL
HCN	0-30.0 ppm	GAXT-Z-DL
NO_2	0-99.9 ppm	GAXT-D-DL
NH_3	0-100 ppm	GAXT-A-DL
NH_3 (extended range)	0-400 ppm	GAXT-A2-DL
PH_3	0-5.0 ppm	GAXT-P-DL
O_3	0-1 ppm	GAXT-G-DL
ETO	0-100 ppm	GAXT-E-DL
NO	0-250 ppm	GAXT-N-DL
ClO_2	0-1 ppm	GAXT-V-DL

BW Technologies by Honeywell

Datalogging

Honeywell

- IR Data Link
  - Works with Gas Alert Clip Extreme and GasAlertExtreme

BW Technologies by Honeywell

GasAlertClipExtreme

Honeywell

- Two year models O2, H2S ,CO and SO2.
- Three year models CO and H2S
- Honeywell exclusive SureCell sensor technology
- Audible, visual and vibrating alarm
- Built in rubber boot
- Stainless steel alligator clip
- IP66/67
- LCD display shows life countdown, max exposure, time since alarms. Stores 10 alarm events; can be downloaded to HP protocol printer or PC via IR port or MicroDock II.
- 2.7 oz. (76g).
- Low and High alarm settings

BW Technologies by Honeywell

GasAlert Clip Extreme

Honeywell

- Continuously on
- One-button activation and test
- Alarm events/ duration of events
- Countdown during IR download
- No battery or sensor replacement
- No calibration required
- LOW and HIGH setpoints displayed on demand in ppm or %
- Monthly O2 calibration reminder and logged on event log
- Self test automatically triggered when in a MicroDock II
- 90db audible alarm
- One Year shelf life

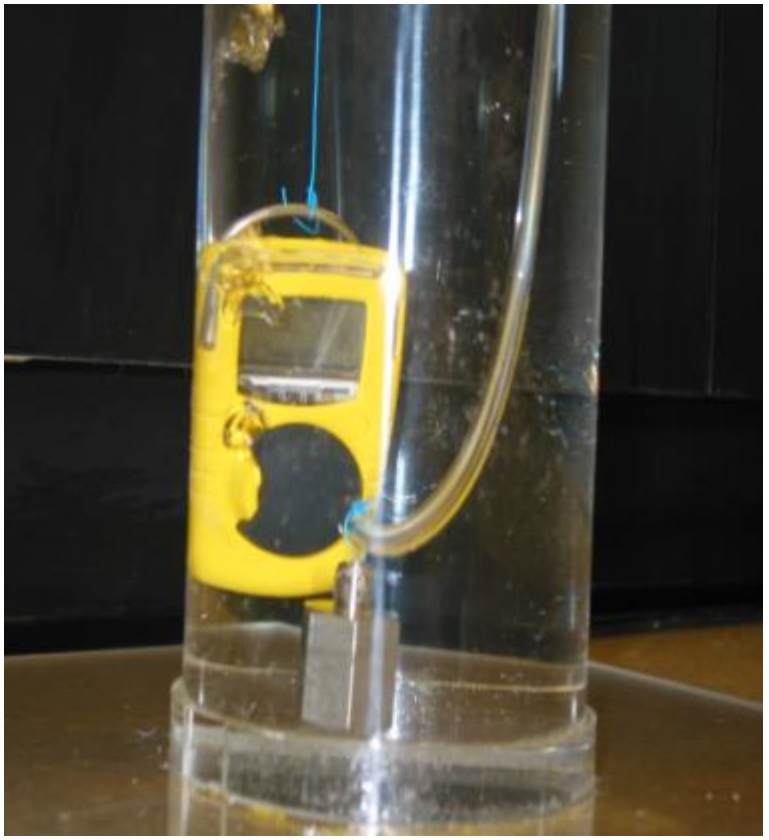
BW Technologies by Honeywell

IP66/67

Honeywell

Up to 1 meter/3 ft

Dust Tight



BW Technologies by Honeywell

GasAlertMax XT II

BW Technologies by Honeywell

Honeywell

GasAlertMax XT II

Honeywell

- Combines features from our field proven GasAlertMax with state of the art electronics and ease of use of GasAlertMicroClip
  - Standard datalogger (16 hours minimum), event logger (30 events) and docking station test records
  - LCD shows all real time gas concentrations
  - Powered by a lithium polymer cell, typical run-time 13 hours
  - Fully integrated diaphragm sampling pump
  - Remote sampling up to 20 meters (75 feet)

BW Technologies by Honeywell

GasAlertMax XT II

Honeywell

- Alarms
  - 95 dB audible alarm, three bright wide-angled visual alarm bars, standard internal vibrating alarm for high noise areas
- Backlight automatically activated in alarm condition
  - In low light environment (can be disabled) or, on demand
- Four alarm levels
  - Instant Low and High for all gases, TWA and STEL for H2S, CO, OL (over limit alarm) for combustible sensor, pump flow alarms
  - TWA, STEL and maximum exposures available for display on demand
- Simple, automated calibration procedure with single-button operation
- Compatible with MicroDock II automatic test, calibration and record keeping system
- Full function self-test of sensor, battery, electronic circuitry, audible/visual alarms

BW Technologies by Honeywell

Sensor Advancements

Honeywell

- Vented MicrocelOx
- Silicon Filtered MICROpel 75C- limits sensor failure due to silicone exposure
  - Sensor response time tested during calibration

BW Technologies by Honeywell

Charging Options

Honeywell

BW Technologies by Honeywell

Rubber Boot & Holster

Honeywell

- Belt holster and concussion-proof boot available

BW Technologies by Honeywell

MicroDock II Module

Honeywell

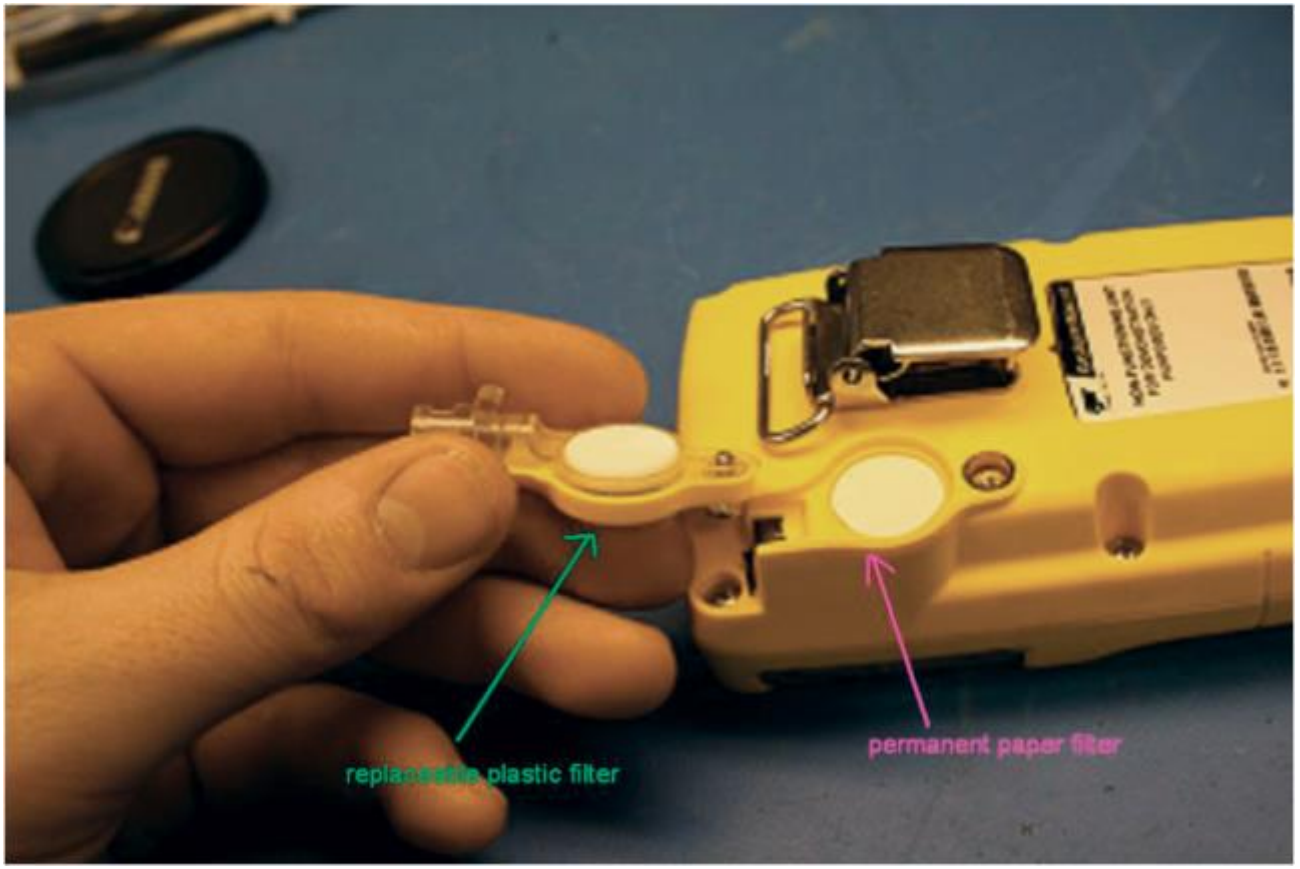
- All modules are charging
- Up to six charging modules on one MicroDock II system
- Eventlog and Datalog upload capabilities

BW Technologies by Honeywell

Pump Filters

Honeywell

- Plastic replaceable filter designed to keep dust out
- Thin paper filter designed as a backup and vapor barrier



BW Technologies by Honeywell

Diffusion Operation

Honeywell

- GasAlertMax XT can easily be converted to a diffusion monitor in the field
  - Remove front cover which deactivates the pump
    - Pump must be operating to calibrate and communicate in MicroDock II

BW Technologies by Honeywell

Calibration

Honeywell

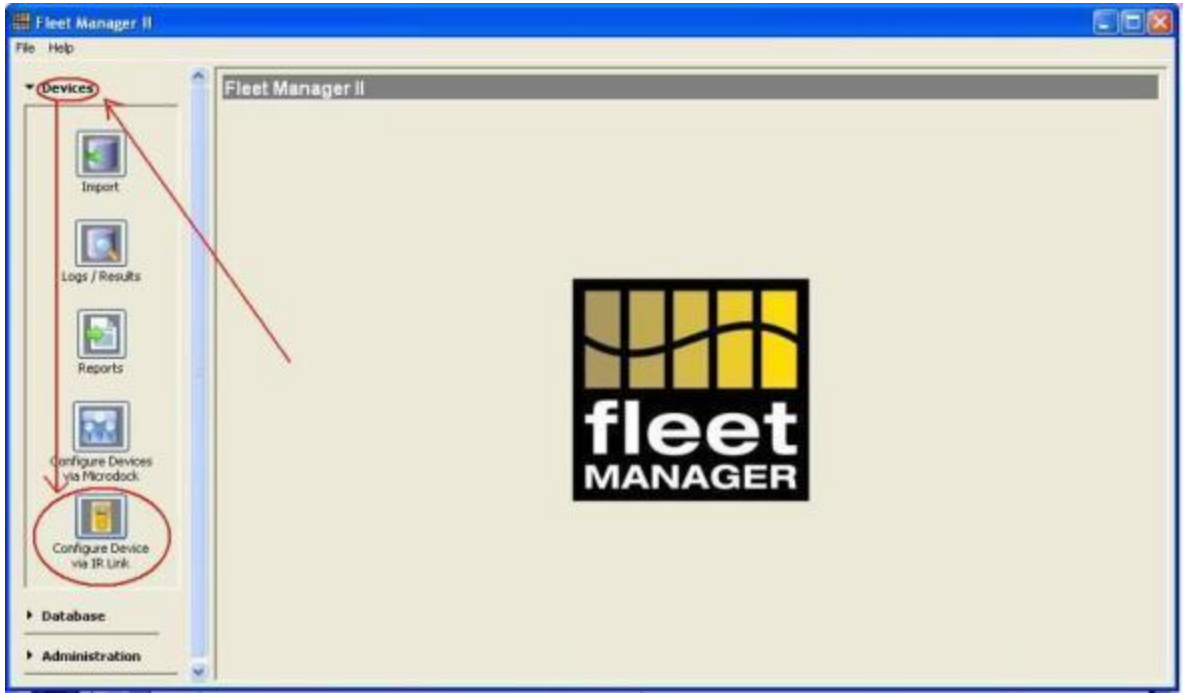
- To enter into calibration mode
  - Hold button 7 seconds
    - Performs zero cal
    - Prompts for calibration
      - Apply 2.5% CH4, 25ppm H2S, 100ppm CO and 18% oxygen
  - Sensors are tested during calibration
    - If sensor does not respond fast enough it will fail at the end of calibration
    - Note O2 sensor is tested during calibration - do not use 20.9% O2 concentration

BW Technologies by Honeywell

Fleet Manager II Configuration

Honeywell

- Use the latest version of Fleet Manager II software
  - Available on CD or from our website: www.gasmonitors.com



BW Technologies by Honeywell

GasAlertMicroClip XT

Honeywell

- Compliance made simple with GasAlertMicroClip XT
- Visual compliance time savings with addition of IntelliFlash
- Same operation users are accustomed to and prefer
- Multi-gas versatility with one-button simplicity
- Thin and lightweight, comfortable to wear and carry

BW Technologies by Honeywell

GasAlertMicroClip XT – Changes

Honeywell

- Offering a 4 series Oxygen sensor
  - Improved quality
  - Lower replacement costs
- Addition of InteliFlash
  - Visual compliance made simple
  - Time savings leads to lower cost of operation
- Change in Li-po Battery
  - Improved performance

BW Technologies by Honeywell

GasAlertMicroClip XT – Value Offering

Honeywell

- Small Size
  - Customers told us size is important
  - Still one of the most compact and lightweight multi-gas units on the market
- Ease of Use
  - Simple one button operation
  - One button bump and calibration with the MicroDock II module
  - Easy management of data and settings with Fleet Manager II
- Time Savings with Visual Compliance
  - Addition of IntelliFlash provides users peace of mind
  - Provides auditors time savings: up to 98 hours and $5,900 in savings a year
    - Based on 100 detectors
    - Refer to the IntelliFlash sales calculator

BW Technologies by Honeywell

MicroClip XT – Order Numbers and Pricing

Honeywell

- All GasAlertMicroClip XT order numbers begin with: “MC2-”
  - MC2-XWHM-Y-NA

Note – “-00” at the end of order number is no longer needed

Product Type	Price USD	Price CAD
4-Gas	$585	$615
3-Gas	$510	$525
2-Gas	$425	$440
Single Gas O_2	$350	$405
Single Gas LEL	$375	$405
Single Gas H_2S	$375	$405
Single Gas CO	$360	$405

BW Technologies by Honeywell

GasAlertMicroClip XT – Docking Module

Honeywell

- A new docking module is required for GasAlertMicroClip XT
  - New Dock module denoted by “P” in Order Number

Order Number	Price USD	Price CAD
DOCK2-2-1P-00-G	$1,495	$1,995
DOCK2-2-1C1P-00-G	$1,545	$2,065
DOCK2-0-1P-00-G	$500	$700

BW Technologies by Honeywell

GasAlertMicroClip XT – 5-Bay Charger

Honeywell

MC2-C01-MC5

BW Technologies by Honeywell

MicroClip XT – Leather Carrying Case

Honeywell

MC2-LC-1

BW Technologies by Honeywell

GasAlertMicroClip XT – Confined Space Kit

Honeywell

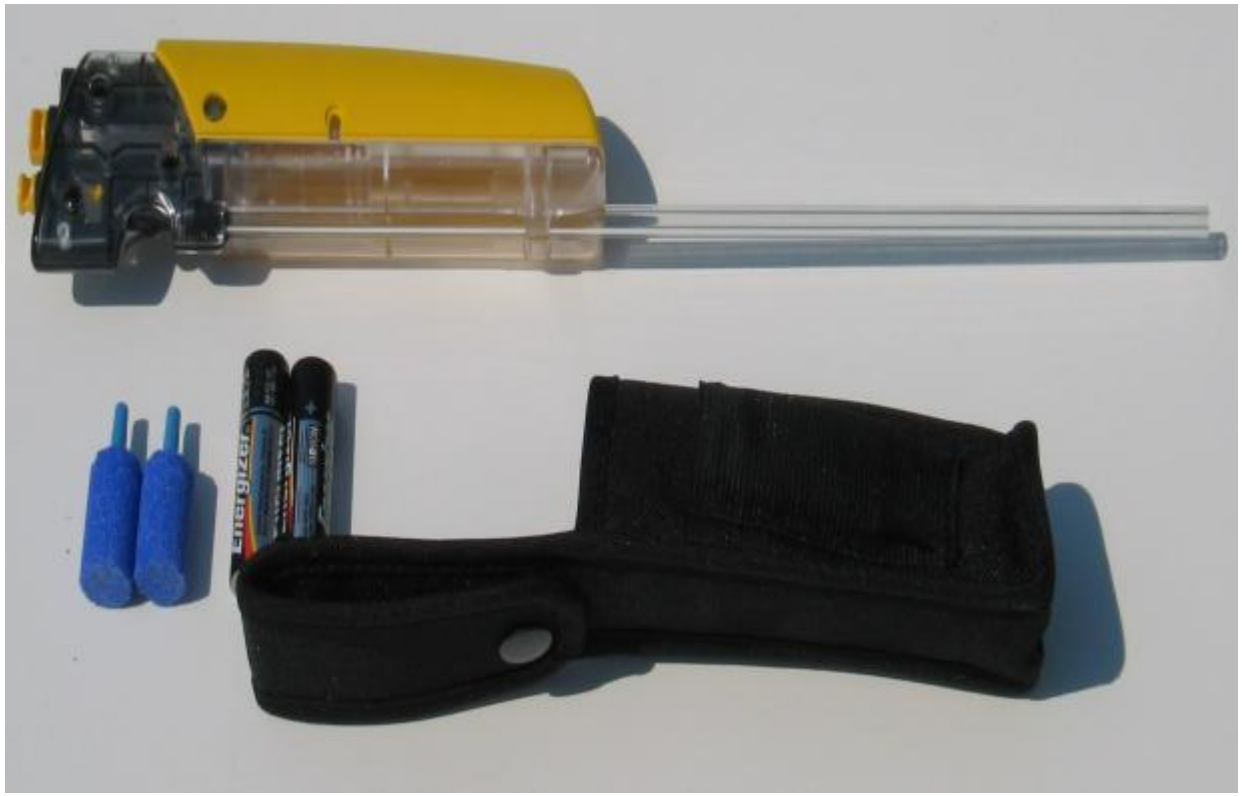
- MC-CK-DL
  - Replaced carrying holster with leather case

BW Technologies by Honeywell

BW Sampler

Honeywell

- New GasAlert Micro and Sampler Holsters



BW Technologies by Honeywell

GasAlertMicroClip XT – Sales Materials

Honeywell

Datasheet

Order Sheet

Accessory Sheet

Lock-out Specs

Lock-out Specifications – GasAlertMicroClip XT Multi-gas Detector

The instrument must satisfy the following:

Physical Specifications	
Size (h x w x d)	Physical size shall be no larger than 4.4 x 2.4 x 1.1 in / 11.3 x 6.0 x 2.9 cm
Weight	Weight of instrument shall be no more than 6.0 oz. / 171 g, including alligator clip.
Case Material	Case material shall be rugged, impact-resistant, non-corrosive composite material that will prevent spark generation and shall be available in highly visible safety yellow or black.
Integral Boot	The instrument shall be equipped with a built-in concussion-proof boot.
Vibrator Alarm	The detector shall be equipped with an internal vibrator alarm for high noise areas.
Handling	Unit shall easily attach to pocket or belt.
Carrying Attachments	Unit shall be equipped with a high-tension stainless steel alligator clip.
Accessories	The following accessories must be available: 1.A manual aspirator pump with sampling hose or probe 2.A motorized sampling pump with sampling hose or probe 3.A vehicle charger 4.Confined space entry kits in a hard-sided carrying case 5.Automatic Test and Calibration Station that shall: - bump test and calibrate instruments in the field without requiring use of a desktop PC or laptop - be fully portable and available in a variety of portable kit options - provide simultaneous management of up to 6 instrument docking modules - include battery and 100-240 VAC line power options - include software for downloading, evaluating and archiving monitoring results
User Interfaces	
Display Type	Large alphanumeric LCD (Liquid Crystal Display) type display with simultaneous and continuous readouts for each gas monitored in ppm, %LEL and % v/v values, as applicable, showing the real-time gas concentrations present. Digits not to be less than 0.260 in. / 6.50 mm high.
Display Symbols (Icons)	Gas alarm icons will clearly identify alarm type, gas hazard and alarm level encountered, low battery condition, instrument status, safe display, stealth, and calibration steps.
Keypad/Switches	One-button operation must: activate the detector; run the self-test; display alarm setpoints; display peak gas exposures and clears them; calibrate and zero. There shall be no requirement to access hidden switches for any instrument operation.
Monitoring Capability	
Configurations	The gas detector must be available in 1, 2, 3, or 4 gas models that continuously and simultaneously monitor for oxygen, combustible/methane gases, hydrogen sulfide, carbon monoxide as applicable.
Gases Detected and Measuring Specifications	Gases / Standard Measuring Range / Extended Measuring Range / Resolution of Standard Range / Resolution of Extended Range Hydrogen Sulfide: 0-100 ppm H_2S; 0-200 ppm H_2S; 1; 1 Carbon Monoxide: 0-500 ppm CO; 0-1000 ppm CO; 1; 1 Oxygen: 0-30.0 % O_2; 0.1 Methane: 0-5% v/v methane; 0.1% Combustible gases: 0-100% LEL; 1.0%
Sensor Type	Sensors must be plug-in.
Longer Life	The catalytic (combustible/methane) sensor should not be affected by common sulfur compounds, such as H_2S.
Instrument Power	
Type and Run Time	Lithium-polymer rechargeable battery pack. The run time shall not be less than 10 hours in normal operation.
Rechargeable Choices	A Vac (110 to 240) line charger, 12 Vdc (vehicle) charger and 12 Vdc / 24 Vdc cable must be available.
Charge Time	Typical charge time for rechargeable batteries shall not be more than 4 hours per battery.
Environmental	
	Normal operation: -4 to +136 °F / -20 to +50 °C
Humidity	0-95% RH (non-condensing) continuous
Ingress Protection	IP 65/67
Calibration	
Automatic Calibration	Calibration must be fully automatic with Auto Zero and Auto Span functions. Instrument must advise as each automatic function takes place and when to apply gas. Calibration span levels must be "User Settable".
Calibration Diagnostics	Equipped with calibration diagnostics protection that ensures a valid calibration, the detector must check the ambient air and the calibration gas. If either does not meet expected values, the detector will refuse calibration and automatically exit the procedure, retaining all previous values.

BW Technologies by Honeywell

GasAlert Quattro

BW Technologies by Honeywell

Honeywell

Introducing …GasAlertQuattro

Honeywell

Saves Time + Increased Productivity + 0% Downtime + Compliance Confidence = GasAlertQuattro

BW Technologies by Honeywell

Saves Time

Honeywell

– IntelliFlash lets the safety manager immediately know their crew is safe, the site is compliant and the job is productive.

BW Technologies by Honeywell

Increased Productivity

Honeywell

– Simplified Training and Operation increases productivity and gives a easy user experience .

BW Technologies by Honeywell

0% Downtime – Power Options

Honeywell

– You can count on the GasAlertQuattro's interchangeable power options and long battery life to get you through every shift.

BW Technologies by Honeywell

0% Downtime – Rugged & Reliable

Honeywell

– The GasAlertQuattro will last through any industrial environment so personnel can continue being protected.

BW Technologies by Honeywell

Compliance & Confidence

Honeywell

– The GasAlertQuattro has the highest level of safety of any gas detector in the market.

BW Technologies by Honeywell

Segments / Vertical markets

Honeywell

- Markets to Target
  - General Confined Space Entry and Personnel Protective equipment markets
  - Utilities / Power
  - Oil and Gas – visual compliance auditing – simplicity
  - Rental market – easily interchange battery with long runtimes – rugged
  - Contractors – Battery flexibility
  - Steel
  - Construction
  - Marine
- Markets to proceed with caution
  - Mining – initially no MSHA
  - Aviation – No PID
  - Telecommunication – likely higher priced product than required

BW Technologies by Honeywell

Reflex ® Keeps you doubly safe

Honeywell

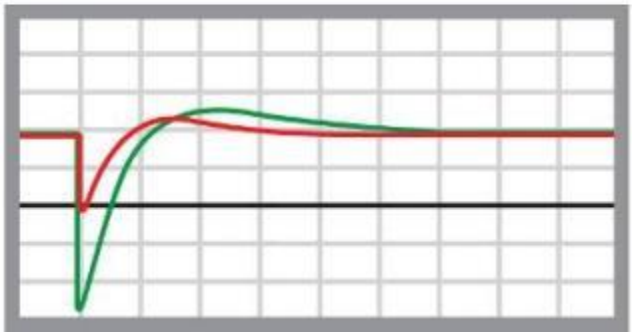
- REFLEX® — Honeywell Patented Exclusive
- Form of Built-In, Electronic Bump Testing
  - Applies special electronic pulse to cell periodically
  - Reviews ‘echo’ from cell as it responds to applied signal
  - Sounds alert when EC cell enters a fault condition (e.g. open or short circuit)
- REFLEX® Advantage
  - Continuously monitors health check status of EC cells
  - Provides double assurance of safety!

Reflex® Keeps You Safer

Oscilloscope graph shows cell responding to Reflex pulse, indicating sensor condition.

GREEN shows optimal sensor condition (dynamic responsiveness to gas).

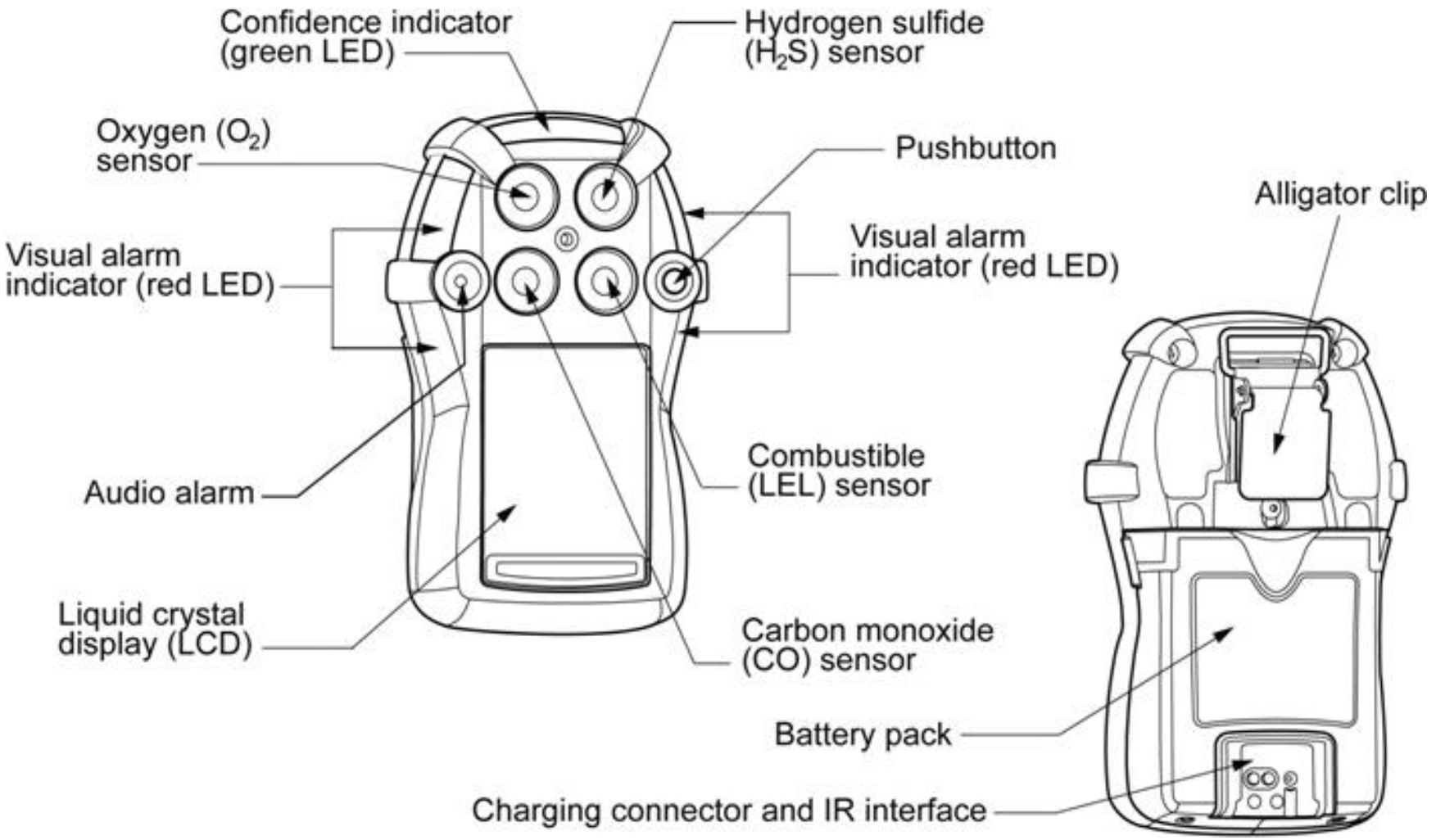
RED shows degraded sensor condition (indicating cell dry-out or failure).



BW Technologies by Honeywell

Parts of the Quattro

Honeywell

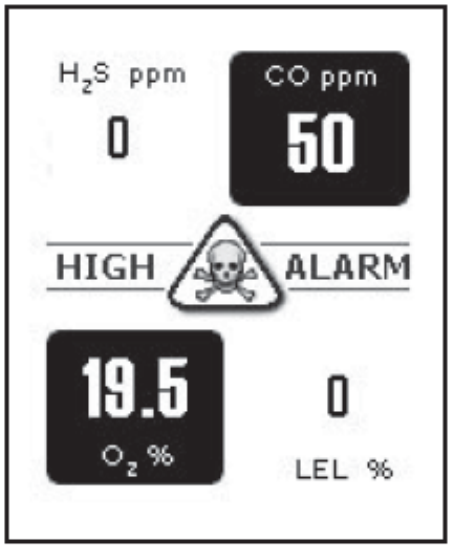


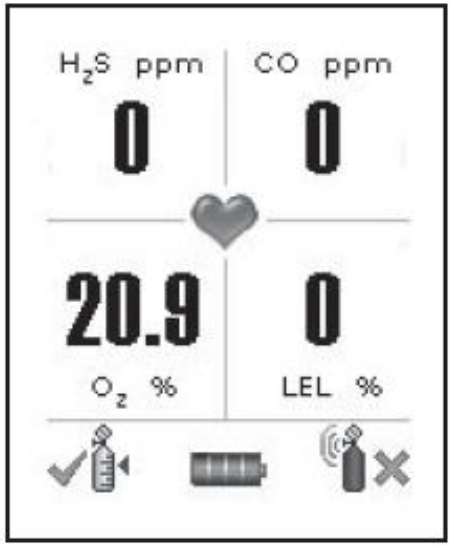
BW Technologies by Honeywell

Display

Honeywell

- Extra large full function LCD display
- Same heart icon as GasAlertMaxXT
- Personalized message on start-up
- Bump and calibration Icons for easy auditing.
- Can be configured to have LCD flip 180 degrees
- Backlight automatically activated in alarm condition; in low light environment (can be disabled) or, on demand



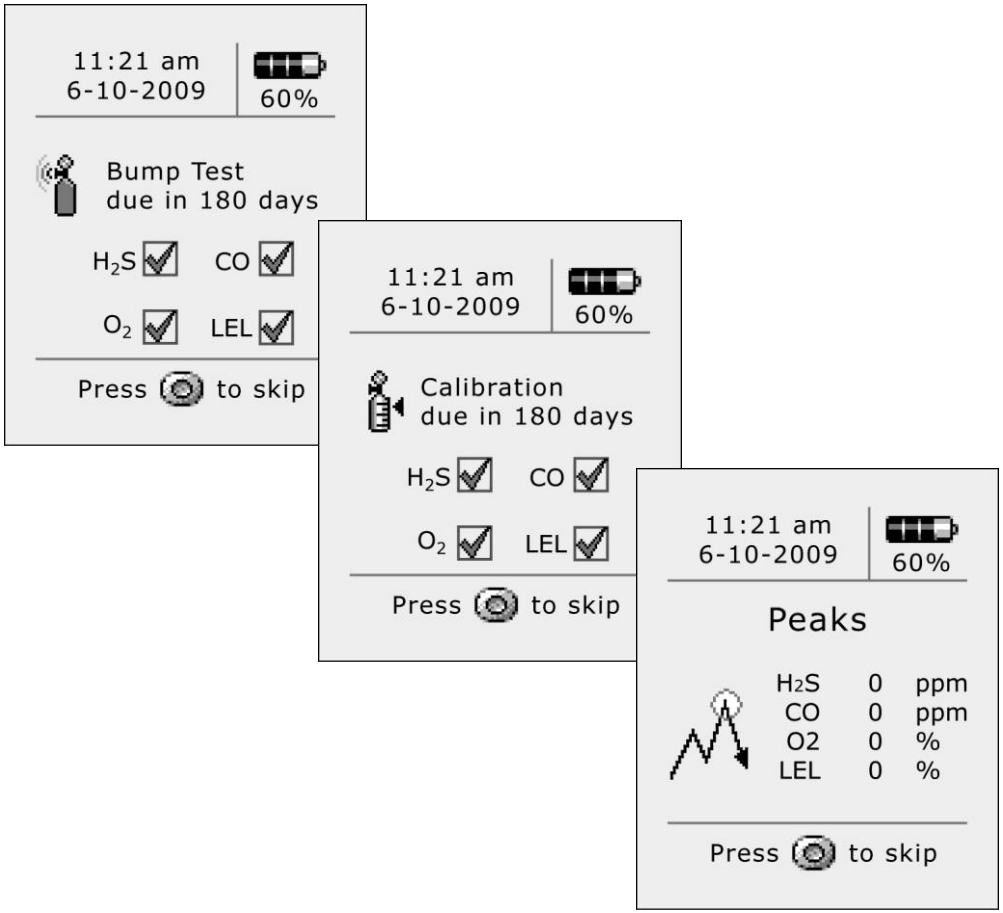


BW Technologies by Honeywell

Info Screen

Honeywell

- Extra dashboard type info at double press of a button for instrument bump, calibration and alarm peak status



BW Technologies by Honeywell

Single Button Operation

Honeywell

- To turn detector on
  - Press and hold button
- To turn detector off
  - Press and hold button until OFF countdown is complete and LCD turns off
- To view info screen
  - TWA, STEL, and MAX hold readings, press button twice
  - To clear TWA, STEL, and MAX readings
    - Press button when LCD displays RESET
- Continue to hold button following deactivation to access calibration mode
- To activate backlight
  - Press button
- To acknowledge latched alarms
  - Press button

Gases & Measuring Ranges

Honeywell

Gases	Standard Measuring Range	Increments
Hydrogen Sulfide	0-200 ppm H2S	0.1 ppm
Carbon Monoxide	0-1000 ppm CO	1 ppm
Oxygen	0-30.0 % O2	0.10%
Combustible Gases	0-100% LEL	1.0% LEL
Methane	0-5% / Vol. CH4	0.1% CH4

BW Technologies by Honeywell

User Options

Honeywell

- No Access to USER OPTIONS through button on instrument
  - User Options can be accessed through PC connection cable or MicroDock II

BW Technologies by Honeywell

User Options

Honeywell

- Confidence / compliance beep
- Set STEL interval
- Latching alarms
- Force calibration
- Flip display
- User-definable calibration gas concentration
- Language choices (five)
- Datalog interval
- IntelliFlash
- Sensor on/off
- Safe display mode
- Auto-zero on start up
- Combustible gas measurement (% LEL or % by volume methane)
- Force bump
- Custom start up message

BW Technologies by Honeywell

Packaging

Honeywell

- Standard unit includes:
  - Monitor as specified
  - Sensors as specified
  - Calibration adaptor and hose
  - User manual
  - Technical manual, technical documentation CD, screwdriver
  - Power cord for specified region if ordered as rechargeable
  - Alkaline tray with 3 AA alkaline if ordered as alkaline
  - Screwdriver for battery screw and routine maintenance

BW Technologies by Honeywell

Connectivity Kit

Honeywell

- Connectivity kit includes
  - USB to IR configuration cable
  - Quick reference guide
  - Fleet Manager II CD
  - New cable for GasAlertQuattro, GasAlertMicroClip & GasAlertMaxXT
    - Dongle end is now blue

BW Technologies by Honeywell

Deluxe Confined Space Kit

Honeywell

- Carrying case
- Die-cut foam and lid insert
- Carrying holster
- IR connectivity kit
- Standard 0.5 L regulator
- Calibration tubing and connectors
- Space for one 34 L gas bottle
- External filter / LCD protector
- Manual aspirator kit
- Sample probe with spare filters

BW Technologies by Honeywell

Rubber Boot

Honeywell

- Concussion-proof boot available for heavy duty protection

BW Technologies by Honeywell

External Filter / LCD protector

Honeywell

- External filter with LCD protector
- Excellent for dirty environments.
- External filter attachment with five filters in pack

BW Technologies by Honeywell

Carrying Holster

Honeywell

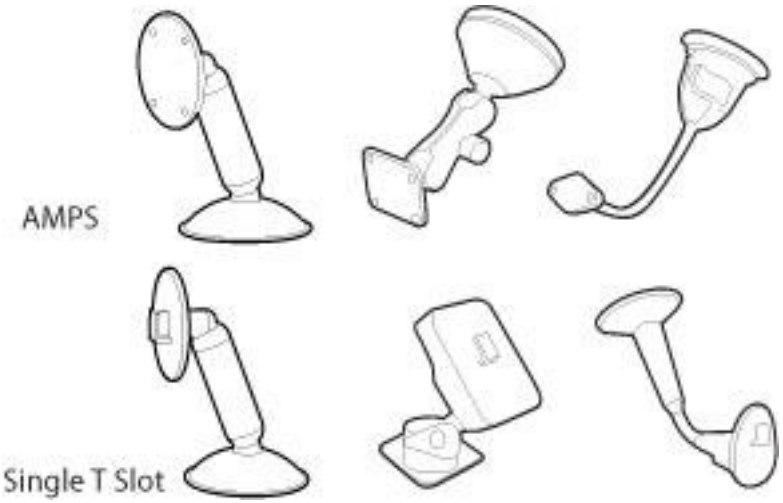
- Case with BlackBerry style attachment
  - Clear front cover for LCD screen protection
  - Case can rotated 360° for best orientation and optimized mobility
  - Can be used with external filter / LCD protector

BW Technologies by Honeywell

Vehicle Attachment

Honeywell

- Vehicle attachment
  - Third party company to supply vehicle connection
  - Ram Mount, Pro Fit, Arkon



BW Technologies by Honeywell

Battery and Charging

Honeywell

- Two GasAlertQuattro battery options
  - 3 AA Alkaline batteries
  - Rechargeable lithium
- Uses same charger as GasAlertMicroClip and GasAlertMax XT
- Rechargeable batteries can be recharged separately
  - 5 bay charger
  - MicroDock II Module
  - Green LED indicates full charge
  - Depleted battery charge in 6 hrs
- Minimum runtime over 20 hours at 20°C (68°F)
- Minimum runtime 18 hours at - 20°C (-4°F)

BW Technologies by Honeywell

Vehicle Charging Kit

Honeywell

- Two vehicle charging kits available
  - 12 VDC with CLA vehicle adaptor
  - 12-24VDC adaptor
    - With leads that can be hard-wired into vehicles
- Same kits as GasAlertMicroClip and GasAlertMax XT

BW Technologies by Honeywell

Multi-Unit Cradle Charger

Honeywell

- Multi-unit cradle charger includes
  - Five charger bays for detector or battery pack
  - Wall-mount kit
  - Includes regional power connections
  - Optional 12 VDC / 24 VDC power cord

BW Technologies by Honeywell

Multi-Unit Power Adaptor

Honeywell

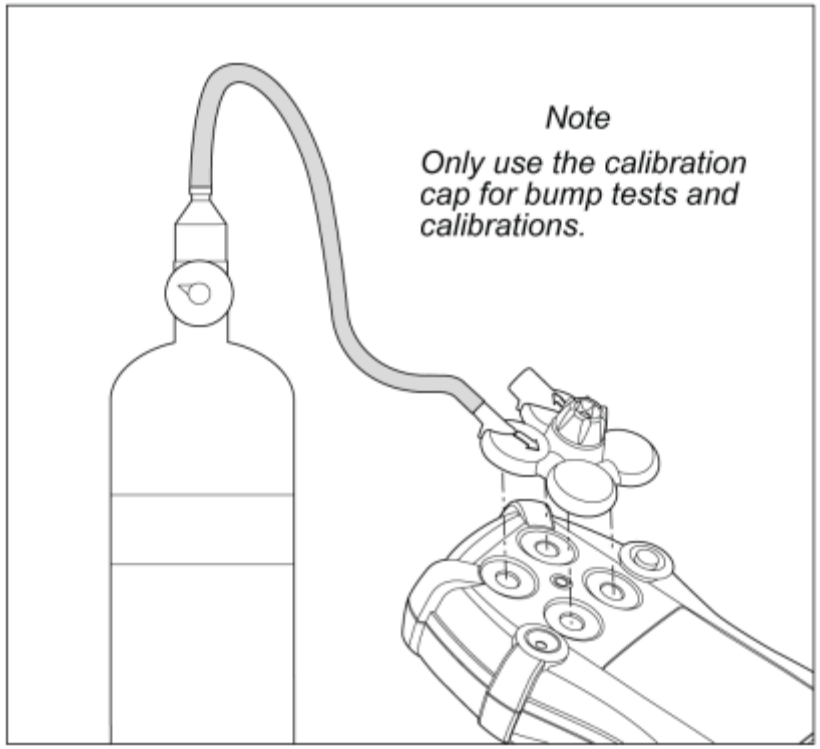
- Simultaneously charge up to five detectors

BW Technologies by Honeywell

Bump Testing

Honeywell

- Bump test confirms sensor response to gas
  - Apply gas exceeding low alarm setpoint of installed sensors
  - CSA must meet 100% of LEL gas applied

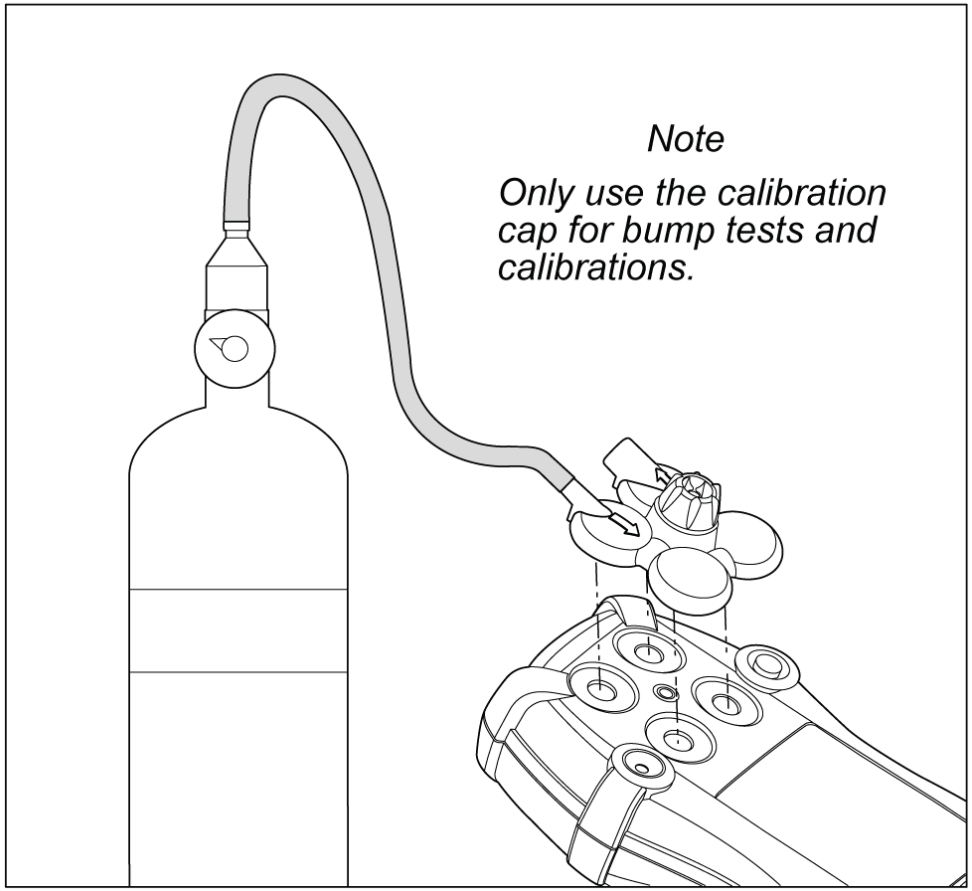


BW Technologies by Honeywell

Calibration & Testing

Honeywell

1. Put instrument into Cal Mode
2. Auto zero
3. Open gas supply
4. Auto span
5. Apply gas
6. Remove gas
7. Cal Due in days displayed
8. End of calibration



BW Technologies by Honeywell

Fleet Manager II

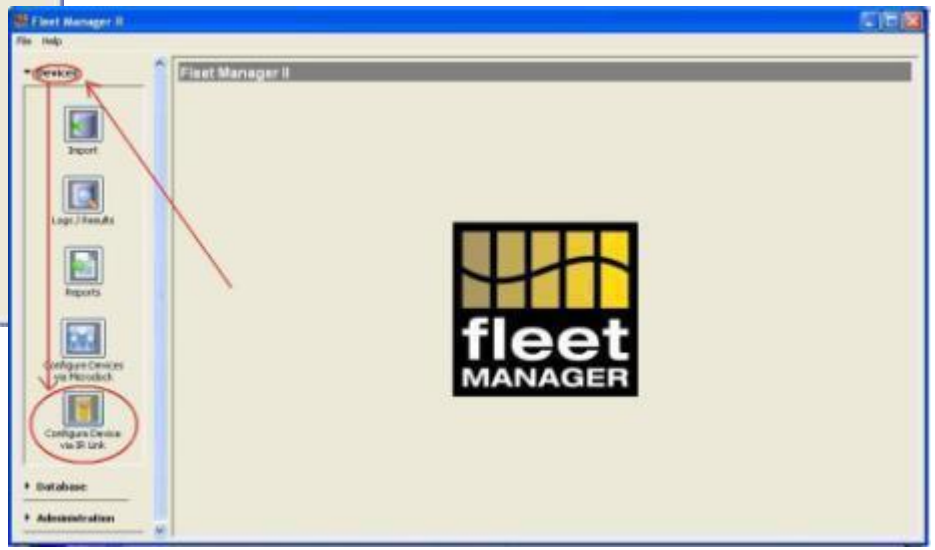
Honeywell

- Use Fleet Manager II to access
  - User options
  - Download datalogged files
  - Download event log files
  - Upgrade firmware
  - Set up personalized start up message

Fleet Manager II

Honeywell

- To log in as Administrator
  - Password is “Admin”
- To configure Quattro
  - Select “Configure Device VIA IR LINK” under Devices



BW Technologies by Honeywell

MicroDock II Module

Honeywell

- All modules are charging
- Event log transmits during any test
  - Data log transfers via button press
  - Automatically if selected in Fleet Manager*
- Supports maximum of 8 standard or 6 charging modules

* MMC can download 10 datalog files and then will begin to overwrite. To protect against loss of data users must remember to periodically download MMC to Fleet Manager II, or download using IR Connectivity Kit directly to Fleet Manager II

BW Technologies by Honeywell

Order Numbers

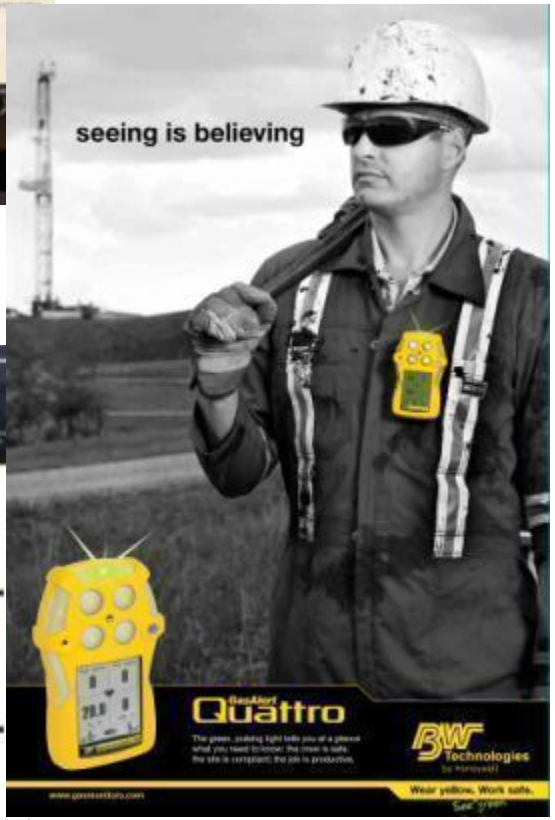
Honeywell

- QT-XWHM-A-Y-NA
  - QT = Detector name
  - Gas Codes
    - X= oxygen, W= Combustibles, H= H2S, M=CO
  - Battery Type
    - A = Alkaline, R = Rechargeable
  - Body Color
    - Y = Yellow, B = Black
  - Regional Variation Code
    - Code determines calibration gas and specific country alarm setpoints
      - EU = Europe
      - UK = United Kingdom
      - NA = North America
      - AU = Australia
      - CN = China/New Zealand
      - OR = Other region with 3-pin UK plug
      - OE = Other region with 2-pin EU plug

BW Technologies by Honeywell

Sales Material

Honeywell



BW Technologies by Honeywell

Micro Dock II

BW Technologies by Honeywell

Honeywell

MicroDock II

Honeywell

- Docking stations increasing in popularity
  - Functional testing, calibration, record data and charge monitors
  - In an event where evidence of proper maintenance and care of a gas detector must be given
    - Docking stations provide objective proof that procedures are being followed
  - Arguably best method for recording test, calibration and activity status
    - Safety managers and industrial hygienists often required to show evidence of up to date monitor calibration and bump test history
      - Docking stations not only record these events, they automatically perform them

BW Technologies by Honeywell

Introduction

Honeywell

- MicroDock II calibration, bump test and record storage system for portable gas detectors
  - Automatic calibration and bump-testing
    - GasAlertMicro 5
    - GasAlert Quattro
    - GasAlertMicroClip XT
    - GasAlert MAX-XT II
    - GasAlert Extreme
    - GasAlertClip Extreme family
  - Expandable to include up to 10 docking modules
  - Maximum 6 charging modules
  - Fully portable
  - No computer required

BW Technologies by Honeywell

Introduction

Honeywell

- Fully automatic “hands-free” calibration and functional bump test
- Automatically verifies performance of audible and visual alarms
- Stores and updates test records
- Entirely self-contained
- Operates via line power or set of four C-cell batteries
- Multiple systems can be connected via LAN
- Additional modules can be easily added in the field

BW Technologies by Honeywell

MicroDock II Base Station

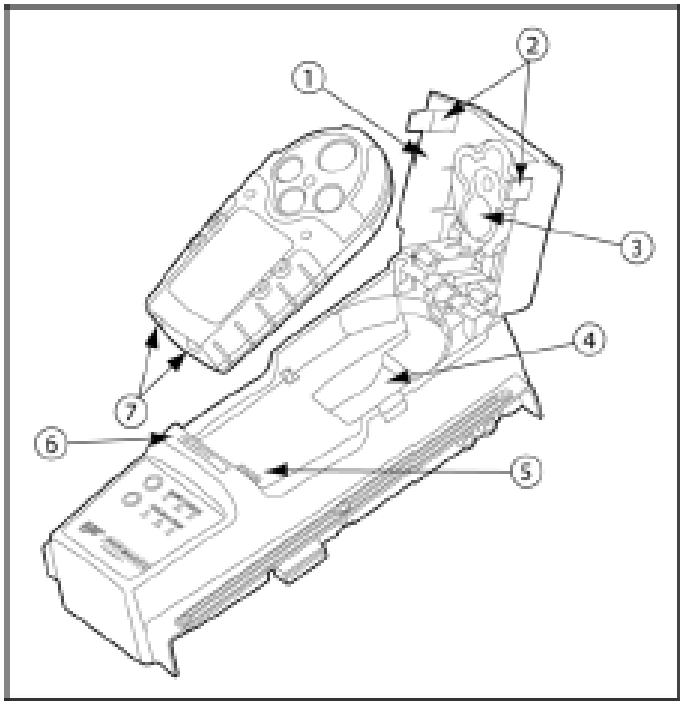
Honeywell

- Microcontroller based control module
- Controls application of gas to each individual Module.
- Up to 4 bottles of gas can be connected
- Displays information about the bump and calibration test.
- When in automatic gas mode (default) all gasses are applied in the correct order.
- The default MMC card is now 64Meg
- Allowable tests are 15,000

Inserting GasAlertMicro 5

Honeywell

- Press two release tabs and lift module lid
- Rotate alligator clip ring up and insert detector
- Lower lid
- Base Station LCD identifies type and serial number of detector inserted
- For diffusion monitors
  - Confirm diffusion adaptor is inserted.
- For pumped instruments
  - Confirm diffusion adaptor is removed or damage can occur

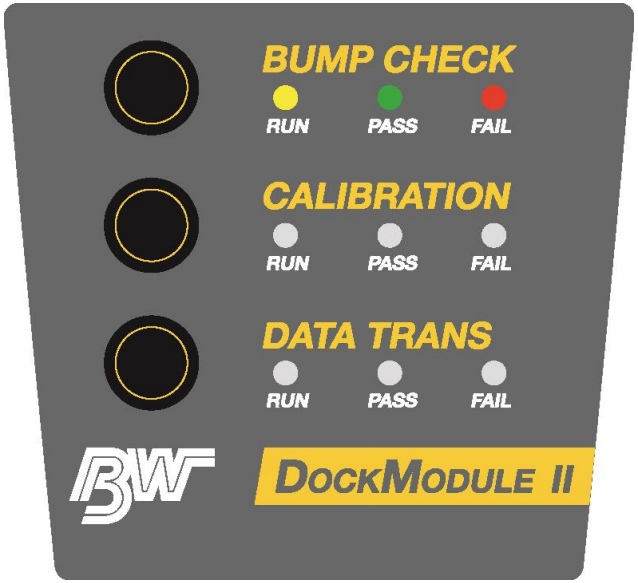


BW Technologies by Honeywell

Bump Check

Honeywell

- Bump test confirms
  - Sensors respond to gas
  - Audio and visual alarms are operational
- Insert detector when in normal operation
  - Press Bump Check button on detector module
- Base Station displays testing information

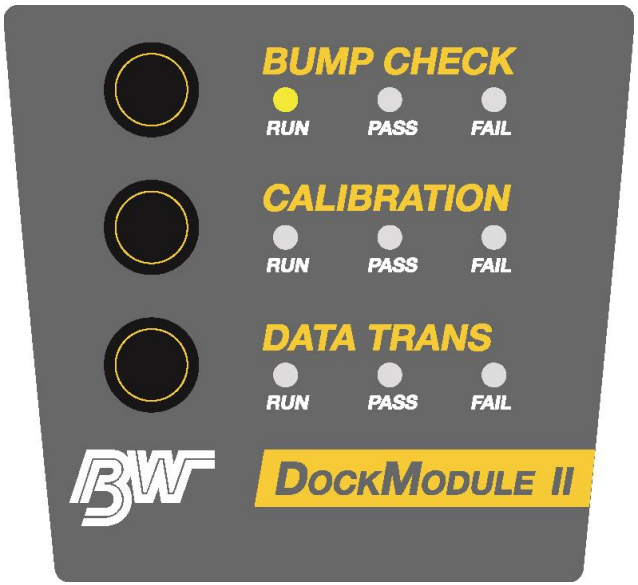


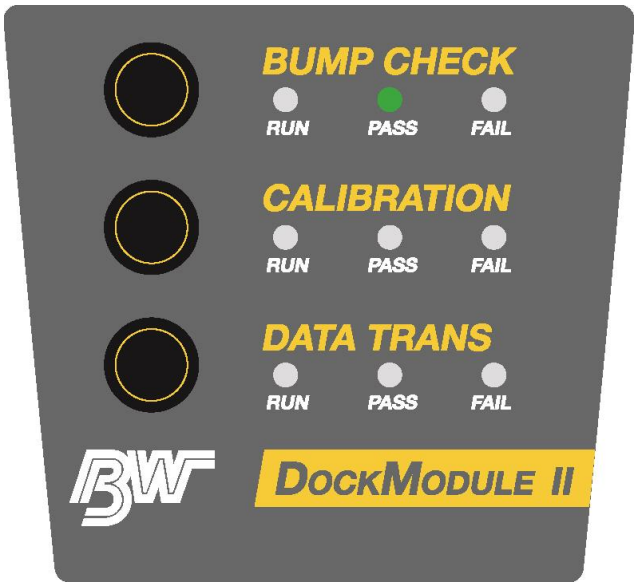
BW Technologies by Honeywell

Bump Check (cont.'d)

Honeywell

- On detector module
  - Yellow run light turns on
- When test complete and successful
  - Green pass light will activate
  - Base Station display shows checkmarks beside each passed test
  - "–" indicates sensor was not tested



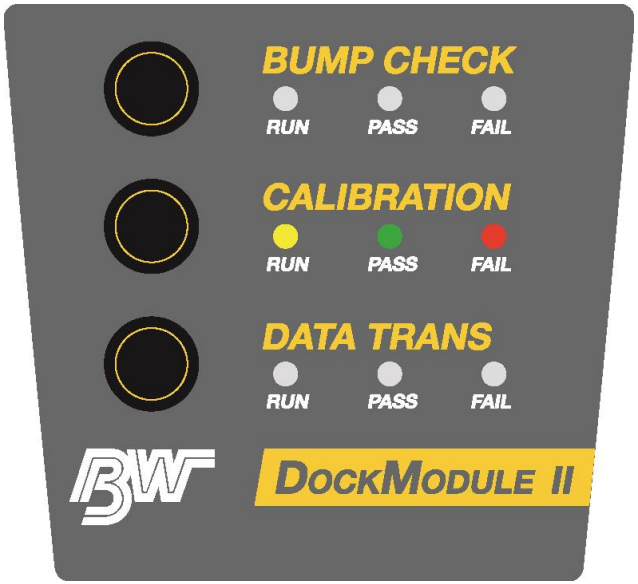


BW Technologies by Honeywell

Calibration

Honeywell

- Calibrations performed to adjust sensor sensitivity levels to ensure accurate gas response
- Insert detector when in normal operation
  - Press Calibration button on detector module
  - Base Station displays testing information

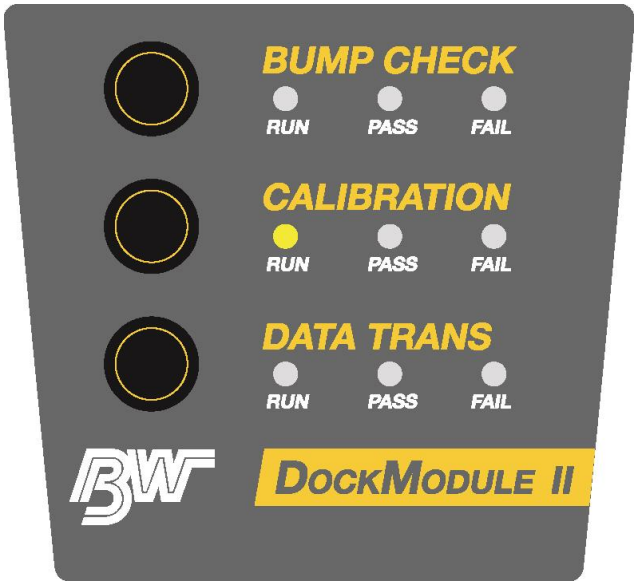


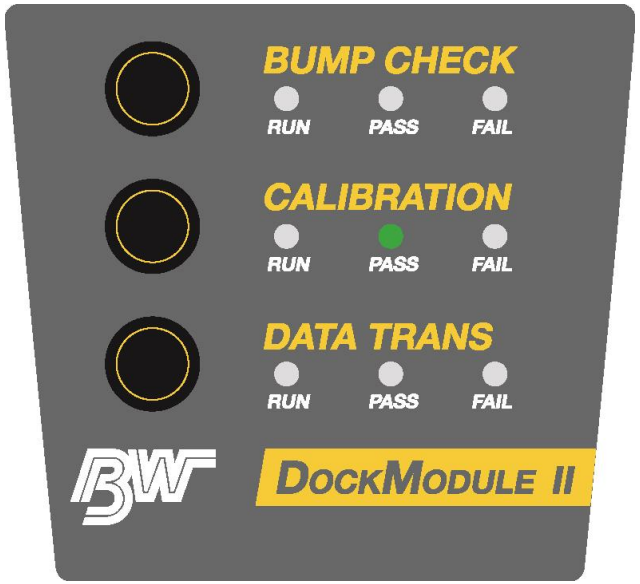
BW Technologies by Honeywell

Calibration (cont.'d)

Honeywell

- On detector module
  - Yellow run light turns on
- When test complete and successful
  - Green pass light will activate
  - Base Station display shows checkmarks beside each passed test
  - "–" indicates sensor was not tested





BW Technologies by Honeywell

Fleet Manager II

Honeywell

- Although some docking stations do not require a computer to operate
  - They can be connected to a network and regularly downloaded for management of a fleet of gas monitors
- Fleet Manger II allows users to
  - Import event logs
  - Save bump and calibration results
  - Data logs from detectors and base stations
  - Generate bump test and calibration certificates
  - Detector status reports
  - Manage users and base stations
  - Configure detectors
  - Archive and save database
- In 2005 a construction company had a death in a confined space
  - In gas reviewing their confined space program they decided to upgrade their detection equipment
  - Understanding need for documentation, they would not even consider a system that did not include a docking station.

BW Technologies by Honeywell

Certificates

Honeywell

Bump Test Certificate

2007-01-04 11:01:33

Device					
Serial Number:	SE105-028350	Device Type:	GasAlertMicro 5		
Manufacturer:	BW Technologies	Next Cal Due:	2007-07-03		
Test Result	Pass				
Sensors					
Type:	Disabled	H2S	CO	LEL	O2
Result:	N/A	Pass	Pass	Pass	Pass
Final Reading:					
Audio Sensors:	Pass	Visual Sensors:	Pass		

Test Station					
Dock Serial Number:	Z206-001210	Dock Location:			
	Inlet 1:	Inlet 2:	Inlet 3:	Inlet 4:	Inlet 5:
Used:	No	Yes	No	No	No
Concentration:	20.9 %	25.0	100.0 %	20.9 %	20.9 %
Type:	Purge	4 Gas Mixture 2.5% vol CH4	Isobutylene	Purge	Purge
Notes:					

- Gas monitor software is dynamic today
  - Provides custom reports and certificates of bump testing and calibration
  - Safety managers often required to show evidence of up to date monitor calibration and periodic testing

BW Technologies by Honeywell

Certificates

Honeywell

Calibration Test Certificate

2007-11-29 16:07:42

Device			
Serial Number:	KA107-0010332	Device Type:	GasAlertMicroClip
Manufacturer:	BW Technologies	Next Cal Due:	2008-04-06

Test Result	Pass

Sensors				
Type:	H2S	CO	LEL	O2
Result:	Pass	Pass	Pass	Pass
Final Reading:	25.0 ppm	100.0 ppm	50.0 %	20.9 %
Next Calibration Due:	2008-04-06	2008-04-06	2008-04-06	2008-05-27

Set Points				
Type:	H2S	CO	LEL	O2
High Alarm:	15.0 ppm	200.0 ppm	20.0 %	23.5 %
Low Alarm:	10.0 ppm	35.0 ppm	10.0 %	19.5 %
TWA Alarm:	10.0 ppm	35.0 ppm		
STEL Alarm:	15.0 ppm	50.0 ppm		

Options			
Datalog Interval:	15 seconds	Unit Programmed:	N/A
H2S STEL Period:	15 minutes	CO STEL Period:	15 minutes

Test Station					
Dock Serial Number:	Z207-001572	Dock Location:	Home		
	Inlet 1:	Inlet 2:	Inlet 3:	Inlet 4:	Inlet 5:
Used:	Yes	Yes	No	No	No
Concentration:	20.9 %	25.0	25.0	20.9 %	20.9 %
Type:	Purge	4 Gas Mixture 2.5% vol CH4	Custom 2 Gas	Purge	Purge
Notes:					

BW Technologies by Honeywell

Reports

Honeywell

- Standard Reports
  - Four types of base reports available
    - **Latest Test For Active Devices**
      - List of latest bump tests and/or calibrations for active detectors within specified date interval
    - **Active Devices Not Bumped and/or Not Calibrated After Date**
      - List of active detectors not had bump test or calibration after specified date
    - **Active Devices Not Bumped or Not Calibrated Within Specified Interval**
      - List of active detectors not had bump test or calibration within specified interval as of a certain date
    - **Devices With No Activity**
      - List of detectors with no bump tests and/or calibrations within a specified interval

BW Technologies by Honeywell

Reports

Honeywell

- Custom reports can include

Test Date Time	Last Cal	Sensor Type
Serial Number	Next Cal Due	Sensor Zero Status
Test	Last Bump	Sensor Result
Test Result	Next Bump Due	Sensor Final Reading
Device User	Data log Interval	Sensor Low Alarm
Supervisor	STEL Period	Sensor High Alarm
Device Status	TWA Period	Inlet Concentration
Location	Pump Enabled	Inlet Type
Dock Serial Number	Audio Sensors	Inlet Used
Dock Location	Visual Sensors	User Definable

- Results can be viewed, printed and exported to csv or xls files

BW Technologies by Honeywell

Reports

Honeywell

BW Technologies Fleet Manager Report

ASSE

Test Date Time	Serial Number	Test	Test Result	Device Type	Next Cal Due	Last Bump
11/29/2007 15:48	651990	Bump Test	Pass	GasAlertMicro	----	----
11/29/2007 15:53	651990	Calibration	Pass	GasAlertMicro	----	----
11/29/2007 15:57	KA107-0010332	Bump Test	Pass	GasAlertMicroClip	4/6/2008	11/29/2007
11/29/2007 16:07	KA107-0010332	Calibration	Pass	GasAlertMicroClip	4/6/2008	----
11/29/2007 16:54	KA107-0010332	Bump Test	Pass	GasAlertMicroClip	5/27/2008	11/29/2007
5/8/2006 6:04	H306-X004597	Bump Test	Pass	GasAlertClip Extreme	----	----
5/8/2006 6:06	616190	Bump Test	Pass	GasAlertMicro	----	----
5/24/2006 10:42	616190	Bump Test	Pass	GasAlertMicro	----	----
5/24/2006 10:45	616190	Bump Test	Fail	GasAlertMicro	----	----
5/24/2006 11:24	616190	Bump Test	Pass	GasAlertMicro	----	----
7/6/2006 10:23	343299	Bump Test	Pass	GasAlertMicro	----	----
7/6/2006 10:31	343299	Calibration	Pass	GasAlertMicro	----	----
7/6/2006 10:33	SK106-001303	Bump Test	Pass	GasAlertMicro 5	12/3/2006	3/10/2006
7/5/2006 16:16	522809	Bump Test	Pass	GasAlertMicro	----	----
7/5/2006 16:35	SE105-025753	Bump Test	Pass	GasAlertMicro 5	11/26/2006	6/15/2006
7/5/2006 16:40	SE105-025753	Calibration	Pass	GasAlertMicro 5	11/26/2006	----
10/2/2006 9:54	SK106-001303	Bump Test	Pass	GasAlertMicro 5	10/2/2006	10/1/2006
12/5/2006 13:04	1010101	Bump Test	Pass	GasAlertMicro	----	----
12/5/2006 13:07	SK105-025052	Bump Test	Pass	GasAlertMicro 5	5/21/2007	12/4/2006
12/13/2006 14:35		Bump Test	Fail	GasAlertClip Extreme	----	----
12/13/2006 14:44	566927	Bump Test	Fail	GasAlertMicro	----	----
12/13/2006 14:46	H305-X194410	Bump Test	Pass	GasAlertClip Extreme	----	----
12/13/2006 14:48	566927	Bump Test	Pass	GasAlertMicro	----	----
12/13/2006 14:55	566927	Calibration	Pass	GasAlertMicro	----	----
12/14/2006 7:24	H305-X194410	Bump Test	Pass	GasAlertClip Extreme	----	----
1/3/2007 10:48	SE105-026055	Bump Test	Pass	GasAlertMicro 5	3/28/2007	7/8/2005
1/4/2007 8:25	602797	Bump Test	Pass	GasAlertMicro	----	----
1/4/2007 8:37	SE105-026055	Bump Test	Pass	GasAlertMicro 5	7/3/2007	7/8/2005
1/4/2007 9:10	SE105-026326	Bump Test	Pass	GasAlertMicro 5	7/3/2007	7/8/2005
1/4/2007 11:01	SE105-028350	Bump Test	Pass	GasAlertMicro 5	7/3/2007	7/8/2005

BW Technologies by Honeywell

Fleet Manager 2 Demonstration

Honeywell

- Activate Fleet Manager II and close presentation

BW Technologies by Honeywell

RigRat III

BW Technologies by Honeywell

Honeywell

Rig Rat III

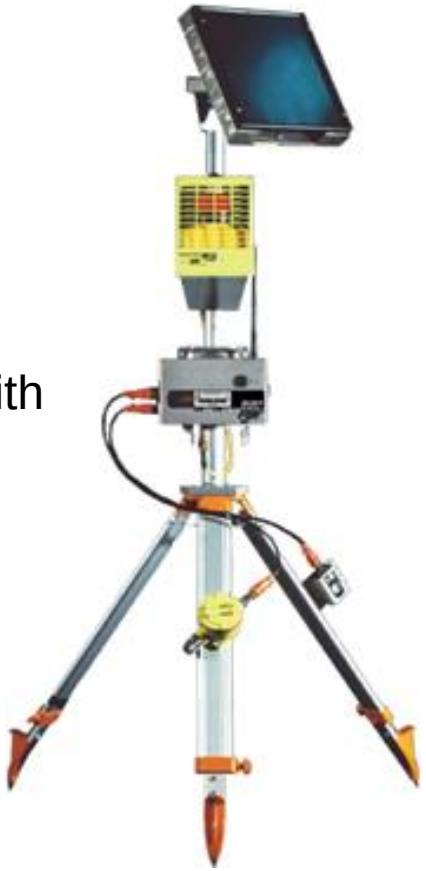
Honeywell

BW Technologies by Honeywell

Rig Rat III Stand-Alone Systems

Honeywell

- 1or 2 sensors per detector
- Fully self-contained
- Digital data transmission
  - 2.4 GHz, license-free ISM band
  - Frequency hopping spread spectrum technology
  - Transceiver provides two-way, real-time communication with the controller
  - Encoded digital signal is RFI protected.
- Instantaneous alarm state transmission at base station



BW Technologies by Honeywell

Rig Rat III Stand-Alone Systems

Honeywell

- Cut installation costs up to 75%
- Dual alarm levels
- Security key access
- Independent power
- Wireless signal transmission
- LCD display on detector
- Built-in alarms for instant notification
- Plug-in ports for remote sensors and options
- Self-contained, intrinsically safe site controller

BW Technologies by Honeywell

System Capabilities

Honeywell

- Continuous two-way communication between controller and each Rig Rat detector
- Real-time digital data transmission for each sensor
- User friendly push-button control interface
- Simplified transmission setup
- System status constantly checked and updated

BW Technologies by Honeywell

Field Tough Design

Honeywell

- Super-rugged design for reliable performance in extreme environmental conditions
- Weatherproof stainless-steel enclosure
- Simply mount the detector to the tripod, wall and turn on
- Hook up power or options via mil-style connectors

BW Technologies by Honeywell

Plug and Play Remote Sensors

Honeywell

- “New style encapsulated sensor“
- Combustible gas
- Zero maintenance
- Weatherproof plug-in mil-style connectors
- Sensors installed up to 250ft. (30m) from detector

BW Technologies by Honeywell

Monitoring Systems

Honeywell

- Multi-point systems can be expanded to 100 or more individual monitoring points
  - Each detector coded to separate channel

BW Technologies by Honeywell

Powering the Rig Rat detector

Honeywell

- Battery Power
- Solar Power
- Bench charger
- Explosion proof charger
- Weatherproof charger
- Line Power

BW Technologies by Honeywell

Rig Rat III Repeater

Honeywell

- Applications:
  - Used to bounce signal
  - Longer distances
- Double transmission distance to 4 miles (6 km)
- Coded to individual detector or multiple detectors
- Internal batteries
- External trickle charge options

BW Technologies by Honeywell

Wireless Receiver Alarm Options

Honeywell

- Equipped with radio receiver
- Remote Receiver Alarms could be installed up to 1.8 miles (3 km) from detector
- Coded to individual detector, multiple detectors
- Solar Capable

BW Technologies by Honeywell

Remote Detector Alarm Options

Honeywell

- High output remote alarms
  - Plug into Detector's option ports
- 60,000 Candlepower Strobe
- 101 dB loud siren directly powered by Rig Rat detector

BW Technologies by Honeywell

Rig Rat Relays

Honeywell

- Used to activate and control BW alarms and options, or site specific field interfaces (control systems, ESD's, fire protection, etc.)
- AD/DC compatible 10 amp relays plug directly into Rig Rat option port
- Powered by the detector
- Available in weatherproof or explosion-proof enclosure versions

BW Technologies by Honeywell

Rig Rat III Wireless Controller

Honeywell

- Rugged stainless-steel self-contained enclosure
- Simple, straight forward, user-friendly operation
- Coded RF Signal transmission
  - Up to 1.8 miles (3 km) between detectors and controller
- Independently powered
  - 110 VAC/220 VAC
  - 24 VDC (optional)

BW Technologies by Honeywell

Rig Rat III Wireless Controller

Honeywell

- Built in 85 decibel audible alarm
- Battery back-up with power indicator
- RESET/TEST switch
- Individual Enable/Disable channel control switches
- Security Key lock ON/OFF switch provides security
- Integrity alarm triggers on Detector problems
- Alarm Acknowledgement

BW Technologies by Honeywell

Controller Accessories

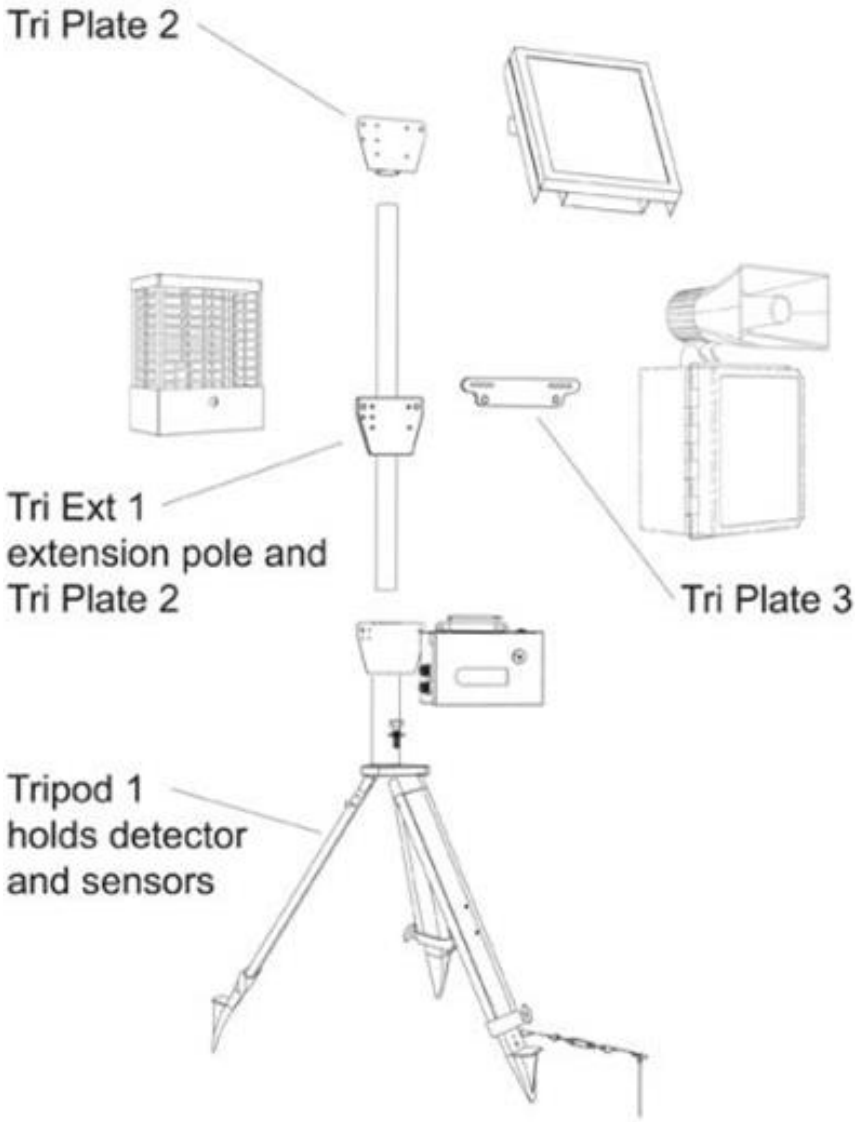
Honeywell

- 160,000 candlepower light bar with 112 dB horn
- High intensity 112 dB audible alarm
- 10 AMP AC/DC relays

BW Technologies by Honeywell

Rig Rat III Packaging

Honeywell



BW Technologies by Honeywell

Rig Rat III Stand-Alone System

Honeywell

- RR III Setup
- RR III Controller Setup
- RF Communication
- System Commissioning

BW Technologies by Honeywell

Rig Rat III Cable Ends

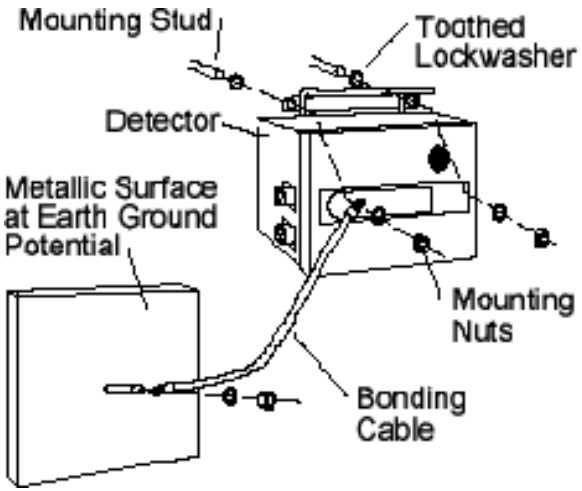
Honeywell

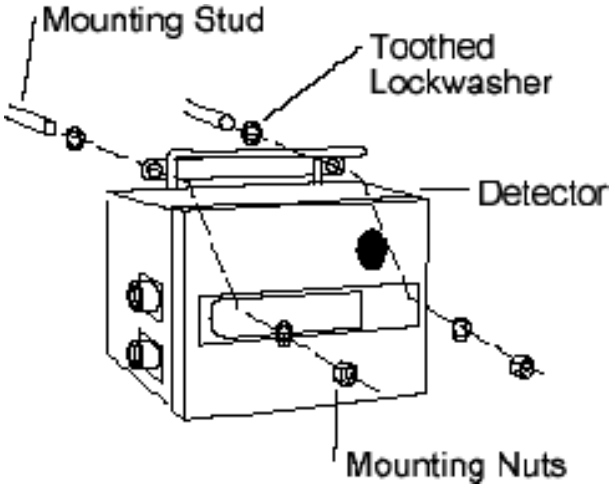
Cable Type	Identifier	# of Pins	Female Connector Mates with	Male Connector Mates with
Sensor	Orange Ends	6	Detector	Sensor Head
Solar Panel	Yellow Jacket	5	Charger	Detector
Option	Various	6	Option/Accy	Detector

Rig Rat III Installation

Honeywell

- Grounding

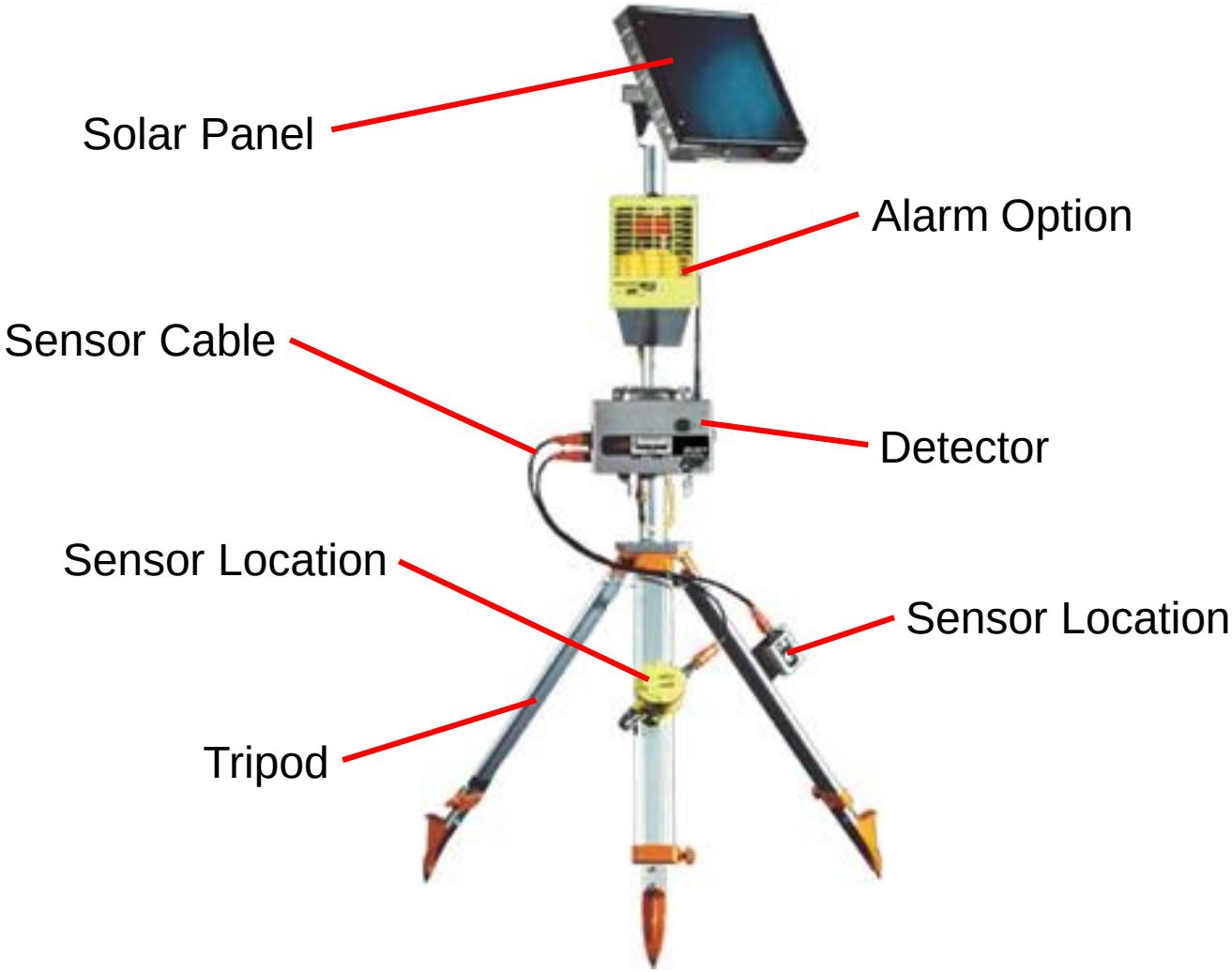




BW Technologies by Honeywell

Rig Rat III Installation

Honeywell

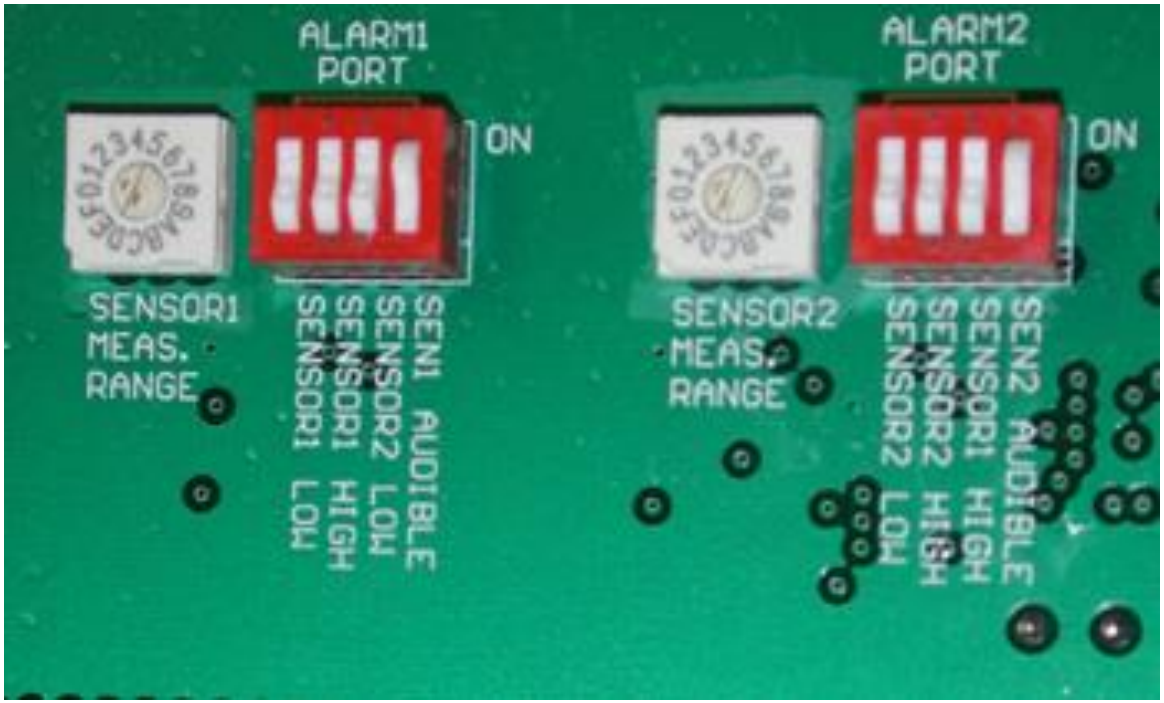


BW Technologies by Honeywell

Rig Rat III Sensor Measuring Range

Honeywell

- Set switch position to LCD measuring range that matches full scale of sensor head used



BW Technologies by Honeywell

Rig Rat III Alarm Outputs

Honeywell

- Select which alarm to trigger at what level

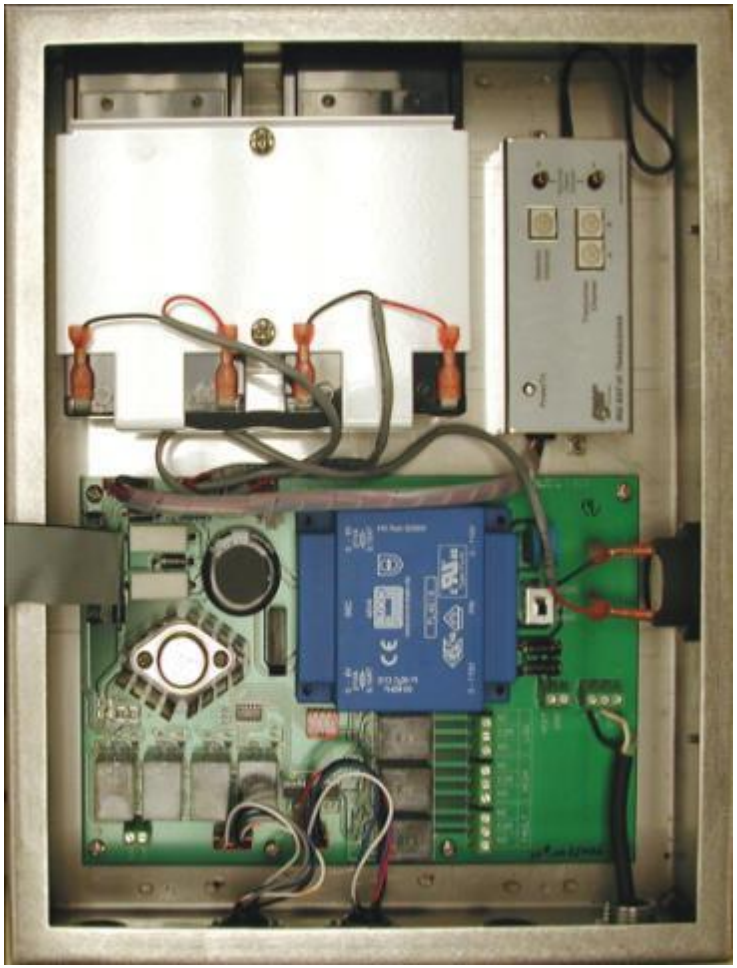
Description	Factory Setting
Sensor 1 Audible	On
Sensor 2 Low	Off
Sensor 1 High	On
Sensor 1 Low	On
Sensor 2 Audible	On
Sensor 1 High	Off
Sensor 2 High	On
Sensor 2 Low	On

BW Technologies by Honeywell

Rig Rat III Controller Set Up

Honeywell

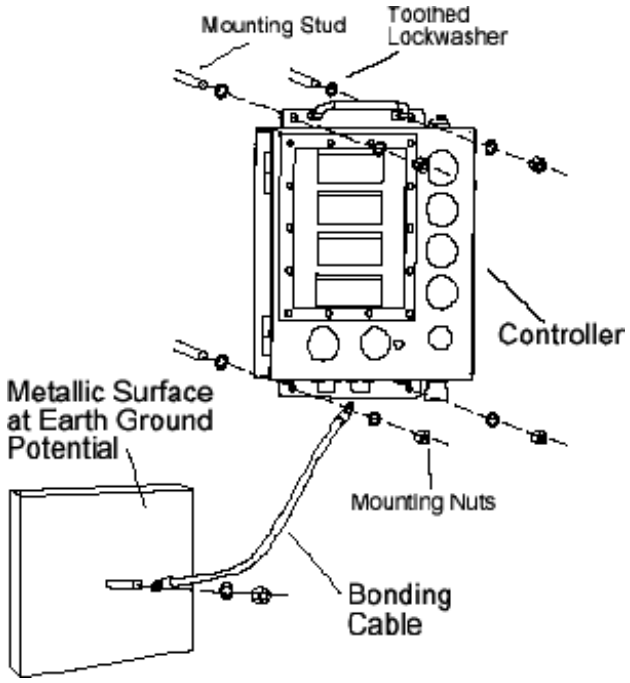
- Installation
- Power Selection
- Transceiver set up
- Relay Configuration

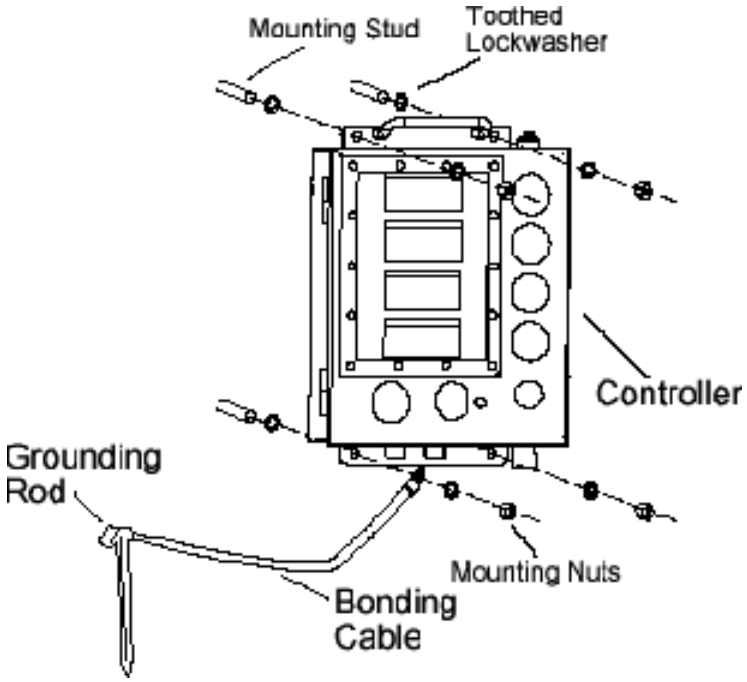


BW Technologies by Honeywell

Rig Rat III Controller Installation

Honeywell

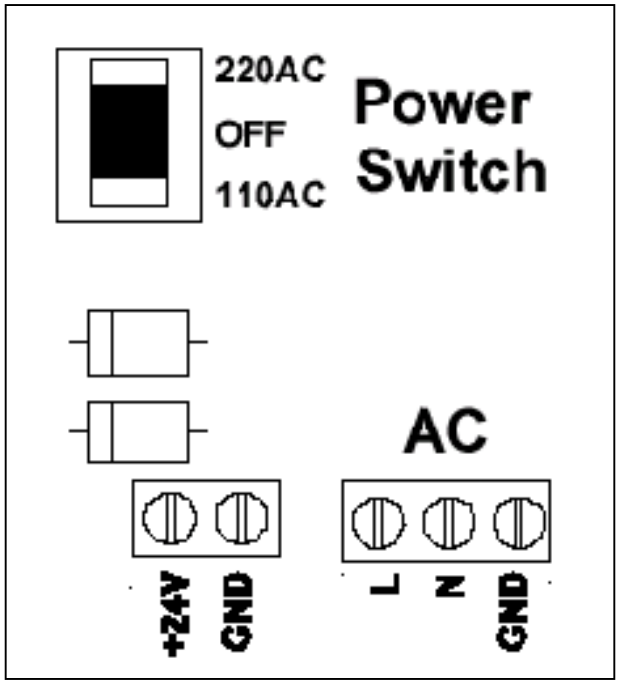




BW Technologies by Honeywell

Rig Rat III Controller Power

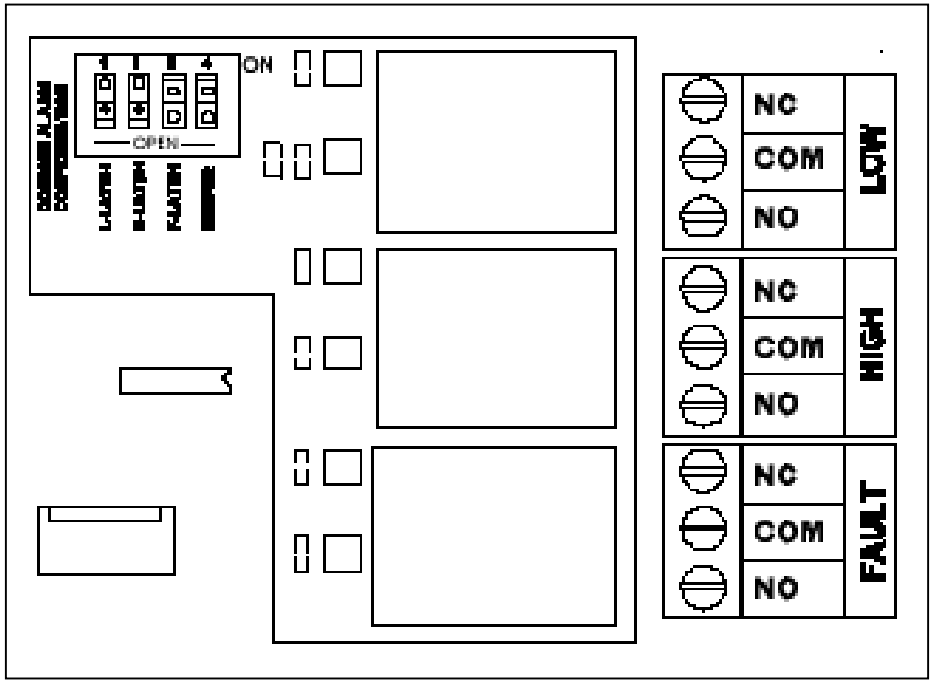
- 110 VAC
- 220 VAC
- 24 VDC



Rig Rat III Relay Configuration

Honeywell

- Low Latching / Non Latching
- High Latching / Non Latching
- Fault Latching / Non Latching
- Audible



BW Technologies by Honeywell

Rig Rat III Controller Transceiver Set Up

Honeywell

- Controller switch labeled “Detector Channel” always set to “0”
  - Switch “A” can be set anywhere between 0 – 3
  - Switch “B” can be set anywhere between 0 - F

BW Technologies by Honeywell

Rig Rat III Wireless Controller

Honeywell

- Power up Controller
- Enable required Channel

BW Technologies by Honeywell

Rig Rat III Detector Transceiver Set Up

- In the detector switch labeled “Detector Channel can be set anywhere between 1- 4
- Switch “A” matched to the controller
- Switch “B” matched to the controller

Honeywell Analytics Portable Products

BW Technologies by Honeywell

Honeywell

Impact / Impact Pro

BW Technologies by Honeywell

Honeywell

Features and Benefits

Honeywell

1. Large graphical display
   - Allows use of icons
2. Ultra-bright alarm light
   - Whole lens area lights
3. Large push buttons
4. Pump option
   - Auto On/Off
5. Durable housing
6. Up to four sensors
7. Powerful audible alarm

Simple to pick up and use

BW Technologies by Honeywell

Features

Honeywell

- Multi Gas detector with great flexibility to measure broadest range of industrial gases including CO_2, OFCH, NH_3, Cl_2, SO_2, NO_2
- Unique sensor cartridge concept lowers cost of maintenance
- Enforcer gas test station makes confined space entry testing safer and quicker
- Internal sampling pump option
- Data logging and reporting software
- Multi Lingual display
- SafeLink communication between attendant and operator

BW Technologies by Honeywell

Features

Honeywell

- Modular design
  - Optional plug-in pump
  - Disposable OFCH
  - Serviceable OF plus 2 toxic
  - Customized via software
  - Few parts
  - Easy to assemble and configure
- Ingress rating of IP 67 for Water resistance
- Interchangeable battery packs
  - NiMH for performance
    - Typical life > 12 hours
    - Pumped ~ 10 hours
  - Alkaline disposable
    - Typical life > 20 hours
    - Pumped ~ 16 hours

BW Technologies by Honeywell

IR Sensors for the Impact Pro

Honeywell

- Warranty
  - IR sensor has a standard 2 year warranty
- IR Sensors available to monitor for:
  - Carbon dioxide, 0.0 – 5.0 %Vol in 0.1% increments
  - % volume Methane, 0 - 100 %Vol in 1.0 %Vol increments
  - % volume LEL0 - 100 %LEL in 1.0 %LEL increments
  - Earlier Impact models can be retrofitted
- ICU Compatible
  - Yes; IR sensor channel data will be displayed with appropriate units as standard but the user must be aware that changing hydrocarbon gas types will not change the standard IR calibrations for methane for the 2 Flammable IR options
- Certification
  - UL
  - ATEX Safety

BW Technologies by Honeywell

Impact Pro IR Features and Benefits

Honeywell

- Warranty
  - IR sensor - 2 year warranty
- IR Sensors available for
  - Carbon Dioxide, 0.0 – 5.0 %Vol in 0.1% increments
  - % volume Methane, 0 - 100 %Vol in 1.0 %Vol increments
  - % volume LEL 0 - 100 %LEL in 1.0 %LEL increments
- ICU Software Compatible
- Certification
  - UL
  - ATEX Safety
- Drift-free operation and longer-term stability
- Immune to poisons such as silicones that can contaminate Catalytic sensors
- Can detect hydrocarbon gas levels in absence of oxygen
  - Measure hydrocarbon gases under nitrogen storage blankets or other inert atmospheres
- Achieve application requirements with overall lower cost of ownership

BW Technologies by Honeywell

Non-dispersive Infrared Gas Detectors

Honeywell

- Many gases absorb infrared light at a unique wavelength (color)
- Amount of IR light absorbed by an NDIR sensor is proportional to the amount of target gas present

BW Technologies by Honeywell

Infrared Detectors

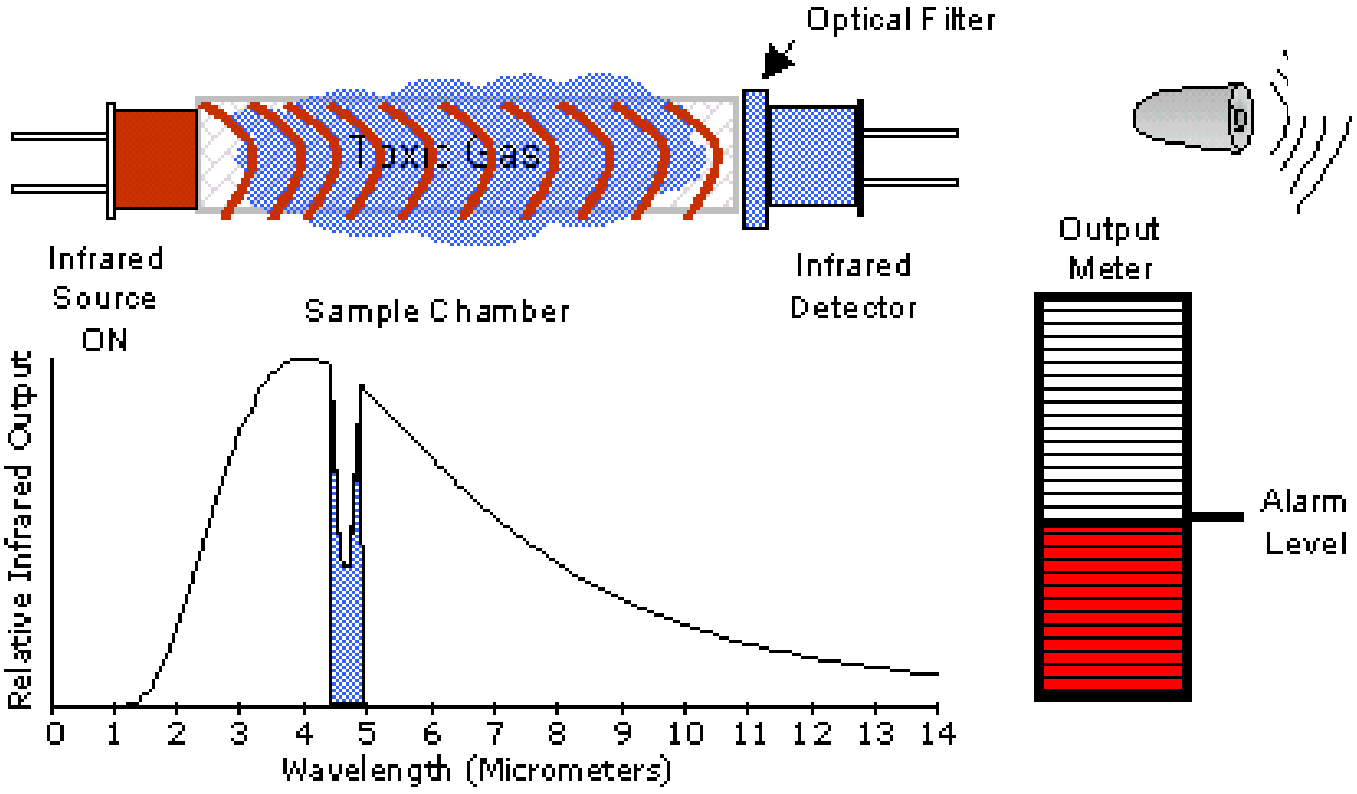
Honeywell

- Chemical bonds absorb infrared radiation
- For infrared energy to be absorbed (that is, for vibrational energy to be transferred to the molecule), the frequency must match the frequency of the mode of vibration
- Thus, specific molecules absorb infrared radiation at precise frequencies
- When infra-red radiation passes through a sensing chamber containing a specific contaminant, only those frequencies that match one of the vibration modes are absorbed
- The rest of the light is transmitted through the chamber without hindrance
- The presence of a particular chemical group within a molecule thus gives rise to characteristic absorption bands

Infrared Detectors

Honeywell

- An NDIR detector measures absorbance at specific wavelength to determine concentration of target gas



BW Technologies by Honeywell

Benefits of Infrared Sensor Technology

Honeywell

- Drift-free operation and longer-term stability
- IR sensors are immune to poisons such as silicones that can contaminate Catalytic sensor types
- IR sensors can detect hydrocarbon gas levels in the absence of oxygen (O2), which cannot be achieved with catalytic bead sensors
  - Typical applications would be to measure hydrocarbon gases under nitrogen storage blankets or other inert atmospheres
- IR sensors generally enable users to achieve their application requirements with an overall lower cost of ownership

Available Gases

Honeywell

- Impact: O_2, LEL, CO, H_2S
- Impact Pro: CL_2, CLO_2, SO_2, NO_2, NH_3, CO_2, O_2, LEL, CO, H_2S

Battery Performance	Ni-MH rechargeable, operating life > 10 hours (Charging time 7 hours) Dry cell disposable > 17 hours Nominal reduction of 10% when used with pump	
Optional Pump	Supplied as standard with Impact Pro. Typical flow rate 0.3l/min Automatic start/stop feature with auto-test on start-up and flow fail alarm	
Approvals	USA:	Class 1, Div 1, Groups A, B, C, D (UL)
	Canada:	Class 1, Div 1, Groups A, B, C, D (CSA)
	Marine:	Marine Equipment Directive MED 96/98/EC

BW Technologies by Honeywell

Impact ICU Software Features

Honeywell

- Windows™ Program – easy to configure, calibrate and interrogate the Impact Pro via PC
- Data logging system
- Password protected data storage
- Automated graphical presentation
- Automated gas, event and calibration history reporting
- Calibration Wizard & Certificate
- Works with existing Impact data and hardware

BW Technologies by Honeywell

Operation

Honeywell

▲ Moves up through menu screens, increases values

✓ Used to accept menus or values

ⓘ On/Off
Used as “change” in menus

▼ Moves down through menu screens, decreases values

BW Technologies by Honeywell

Available Gases

Honeywell

				Sensor Technology			
Detectable Gases	Code	Range	Disposable	Serviceable *	Cat Bead	IR Cell	EC
Oxygen (O2)	O	0-25 % v/v	Always fitted	Always fitted			X
Flammable	F	0-100 % LEL	Always fitted	One catalytic sensor always fitted	X		
Flammable IR %LEL	R	0-100 % LEL	Not available	IR sensor always fitted		X	
Flammable IR %VOL	V	0-100 % VOL	Not available	IR sensor always fitted		X	
Carbon Monoxide (CO)	C	0-500 ppm	O	O#			X
Hydrogen Sulfide (H2S)	H	0-50 ppm	O	O#			X
Sulfur Dioxide (SO2)	S	0-20 ppm		O			X
Chlorine (Cl2)	L	0-10 ppm		O			X
Nitrogen Dioxide (NO2)	N	0-20 ppm		O			X
Ammonia (NH3)	A	0-100 ppm		O			X
Carbon Dioxide (CO2)	D	0-2% v/v		O			X
Carbon Dioxide (CO2) IR	T	0-5 %V/V		O#		X	

*** Serviceable cartridges only available in 1 or 4 channel configurations**
 # All OFCH, OFC, OFH and OF are disposable only. C or H sensors only available for use in 4 gas Serviceable cartridges
† Infrared sensor cartridge models include one IR catalytic sensor for detecting flammable %LEL, %VOL or carbon dioxide; three additional electrochemical sensors are provided for detection of two toxic gases and oxygen.

BW Technologies by Honeywell

Impact vs Impact Pro/Pro IR

Honeywell

	Impact	Impact Pro/Impact Pro IR
Cartridge Type	Disposable only	Disposable or Serviceable
Integral Pump/Pump Adaptor	No	Yes
Vibrating Alarm	No	Yes
Safelink	No	Yes

Enforcer Calibration

Honeywell

Open

Insert

Close

Press then
wait ~90 sec

BW Technologies by Honeywell

Other Calibration Methods

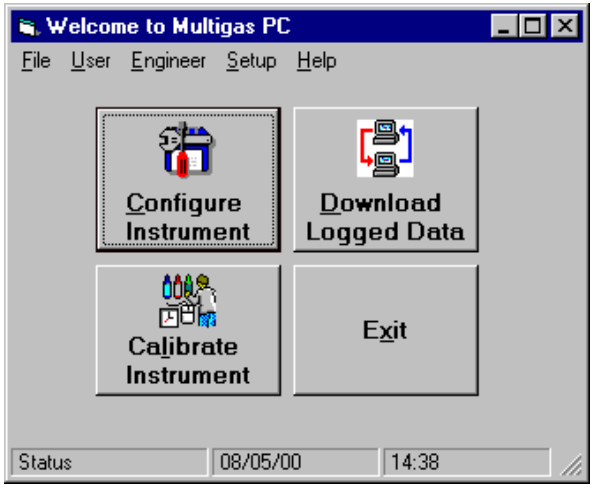
Honeywell

Calibrate using…

- Instrument menu

Or…

- PC calibration wizard
  - Multi-lingual menus walk the user through the process ensuring step by step accuracy
  - Calibrations logged in the instrument
  - Reports can be downloaded, printed and archived via the ICU software



BW Technologies by Honeywell

Safelink™

Honeywell

- Allows 2 Impact Pros to communicate with each other in real time
  - First unit – **entrant** - measures and displays gas concentrations locally
  - Second unit – **attendant** - displays them remotely
  - Both units display alarms and warnings
    - Can communicate with simple, pre-defined text messages

'Attendant'

'Entrant'

BW Technologies by Honeywell

Training Video

Honeywell

BW Technologies by Honeywell

Wide Range of Industries & Users

Honeywell

- Transportation
- Confined spaces
- Steel mills
- HVAC contracting
- Construction
- Brewing
- Shipping
- Offshore petrochemical
- Onshore petrochemical
- Power stations
- Grain storage
- Remediation
- Chemical plants
- Refineries
- Tunnelling
- Waste water treatment
- Drinking water treatment
- Telecommunications
- Utilities (water, electric etc)
- Pulp and paper
- Mining

BW Technologies by Honeywell

Impact and Impact Pro Multi Gas Detector

Honeywell

- Product Overview
- Hands On
- ICU Software
- Cost of Ownership

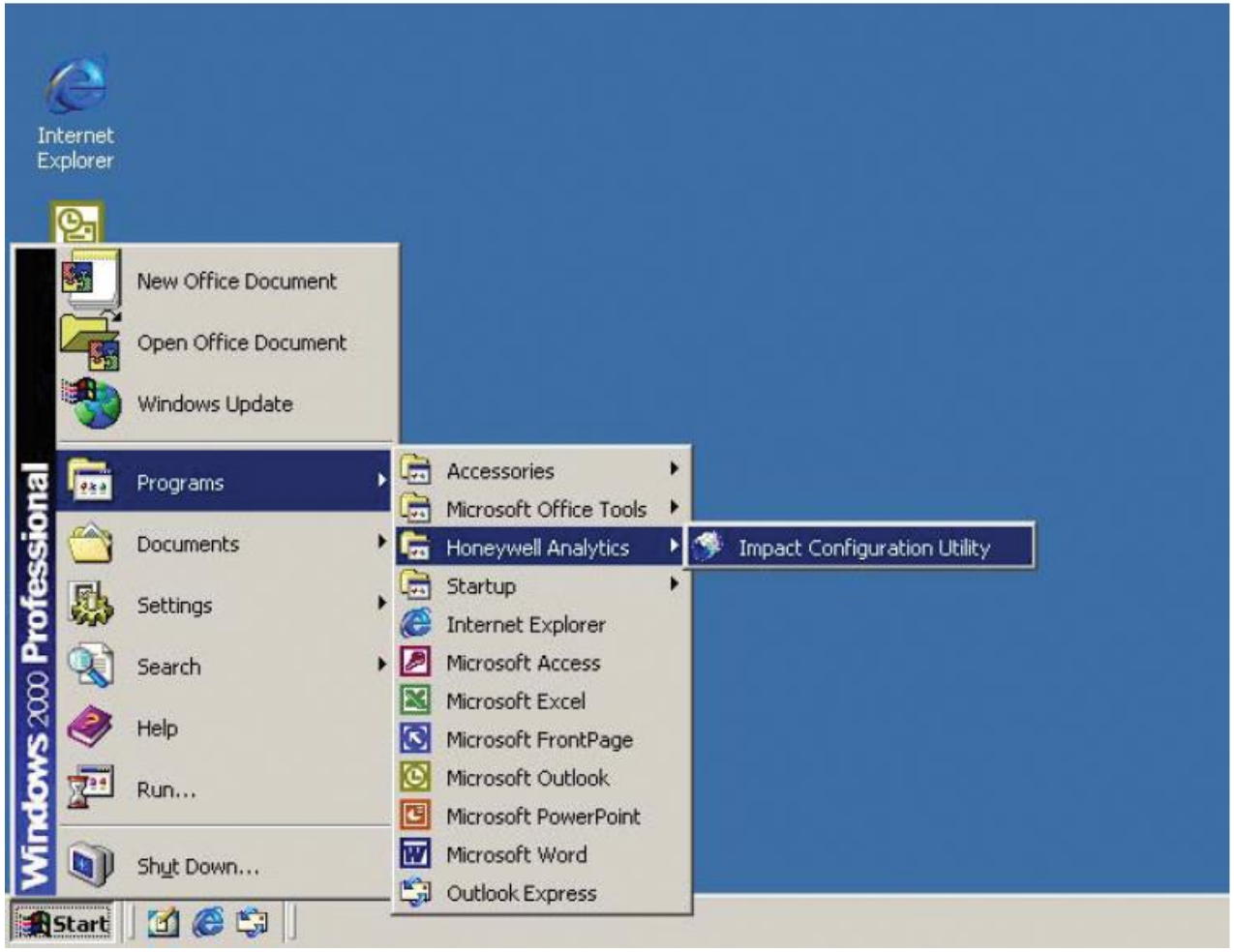
BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

Running ICU

1. After the user has installed the ICU, run it by clicking on [Start->Programs->Honeywell->Impact Configuration Utility] as i
FIGURE 2-1.



BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

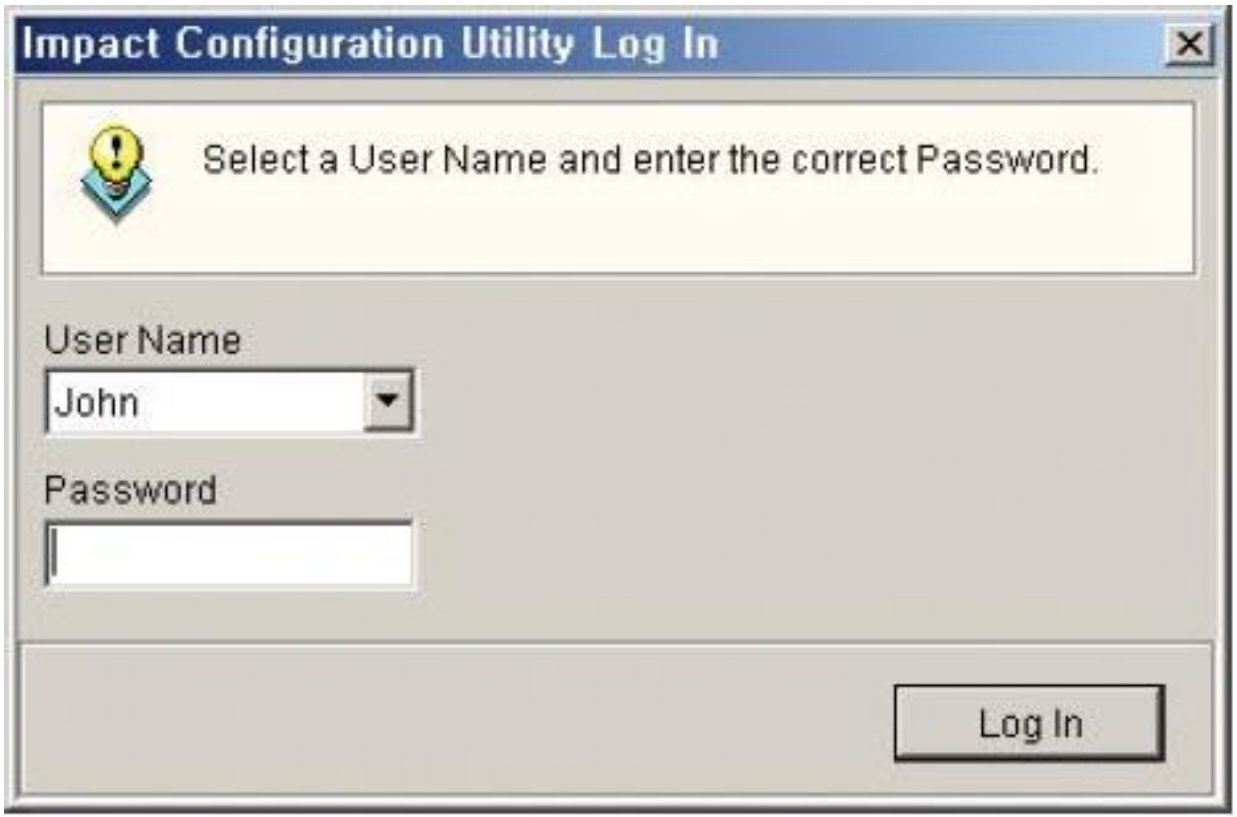


FIGURE 2-2 ICU Log in Window

3. If user fails to log in three times in succession the program will exit automatically.

4. If login is successful, the ICU Main Window will appear as in FIGURE 2-3.

BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

To modify the communication settings:

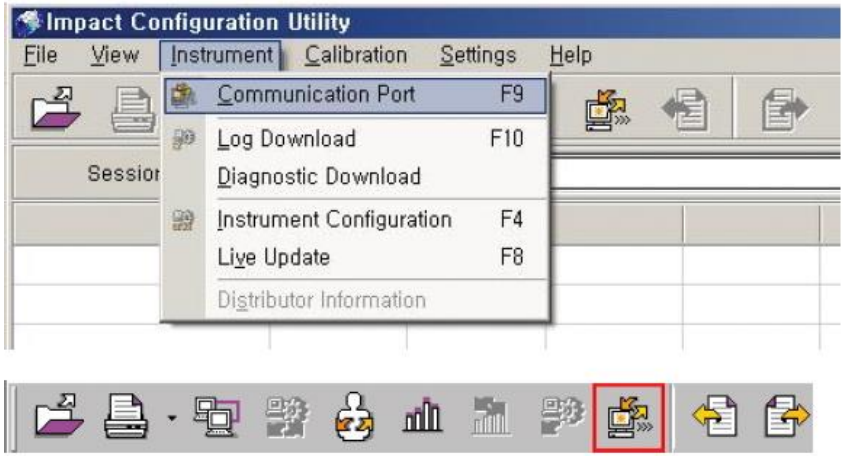


FIGURE 4-7 Communication Port menu

1. Use the [Instrument->Communication port] command or click on the Communication Port butto

2. The Communication Port window appears as in FIGURE 4-8 allowing you to modify the serial p

3. Select the appropriate port and click on the OK button.

Communication Port
1. Select the port number to which the instrument is connected.
2. Click on the 'OK' button to accept the setting.
COM Port
COM1
OK
Cancel

BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

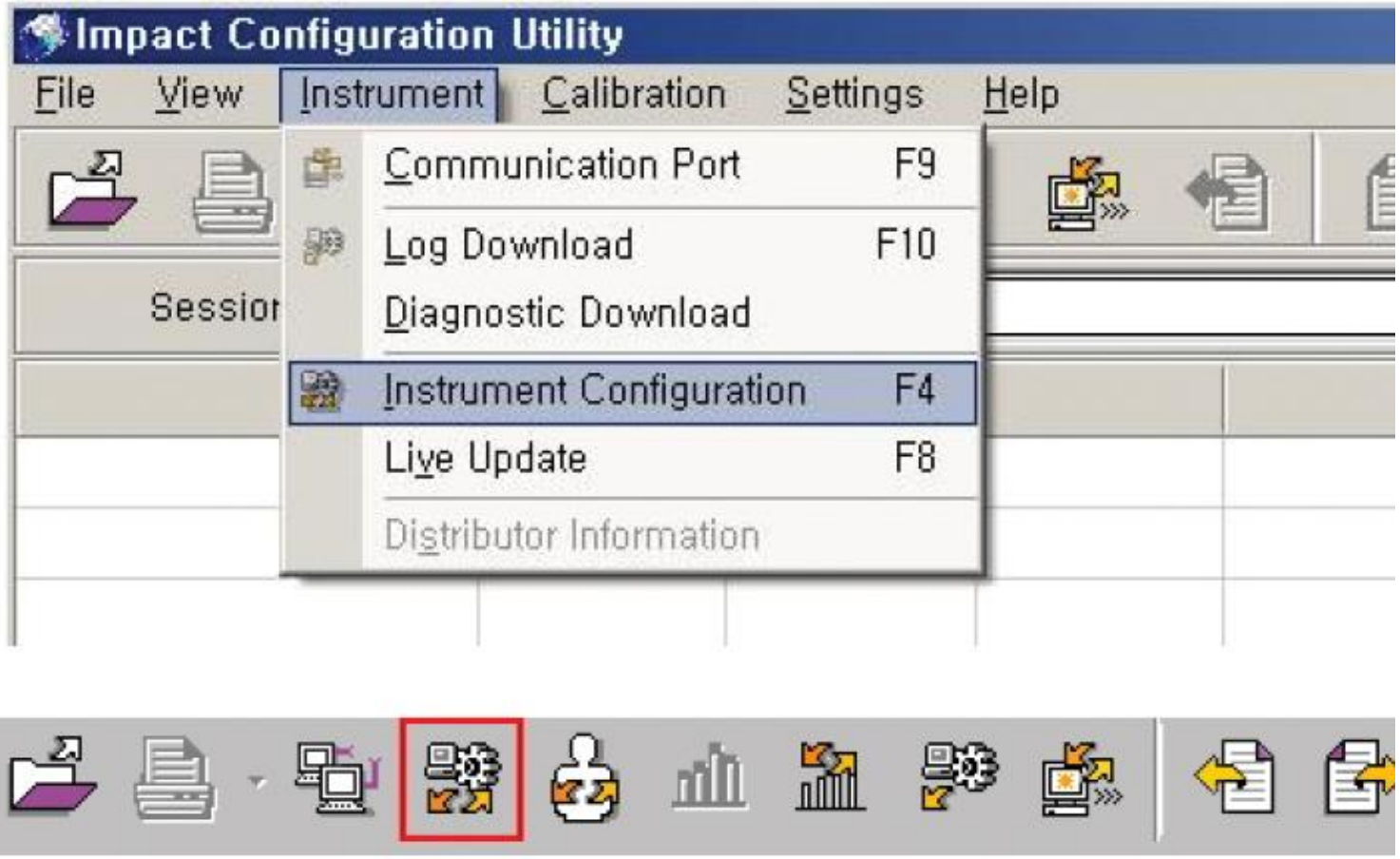


FIGURE 5-1 Instrument configuration menu

1. Use the [Instrument->Instrument Configuration] command or click on the Instrument

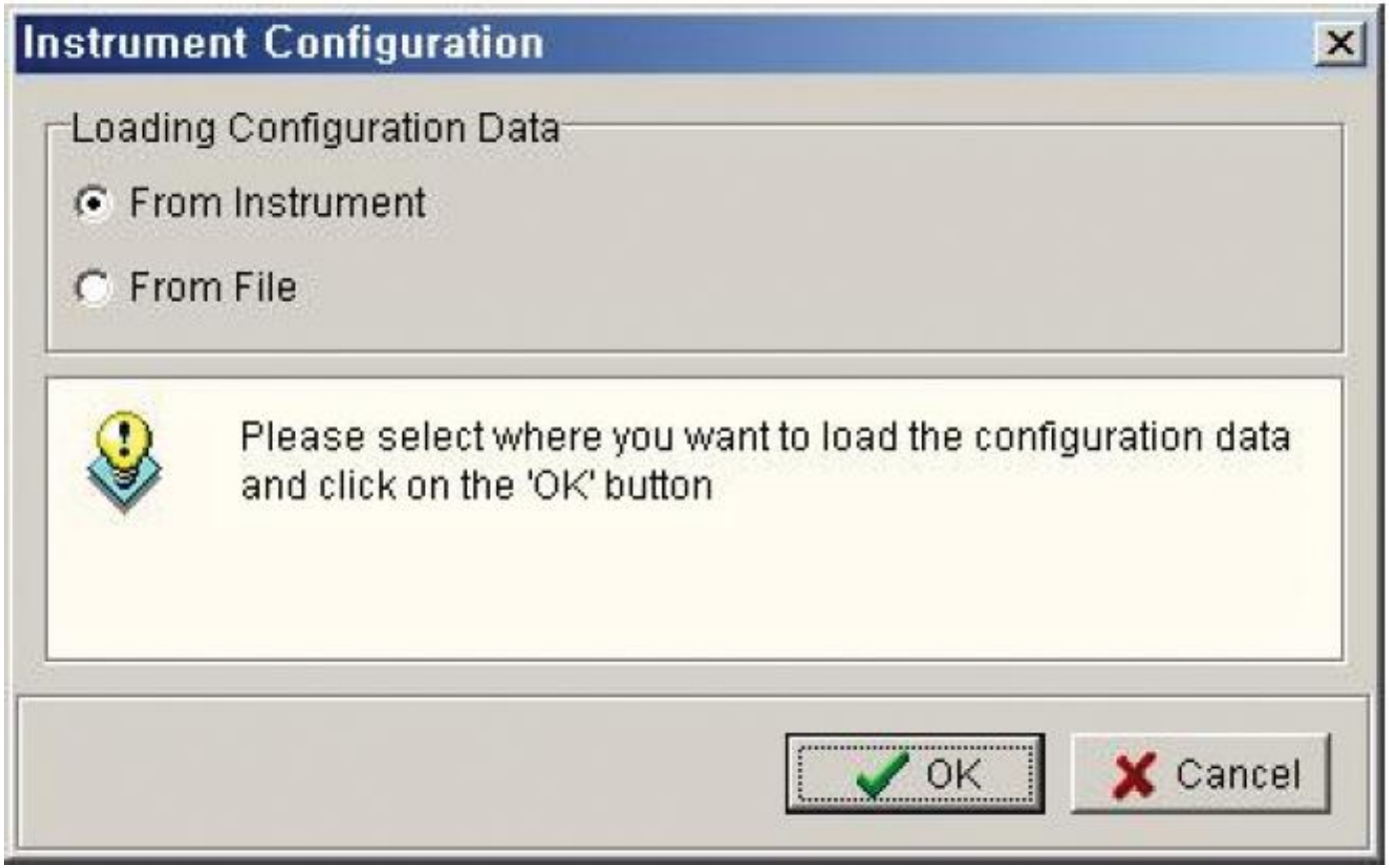
BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

Configuration button.

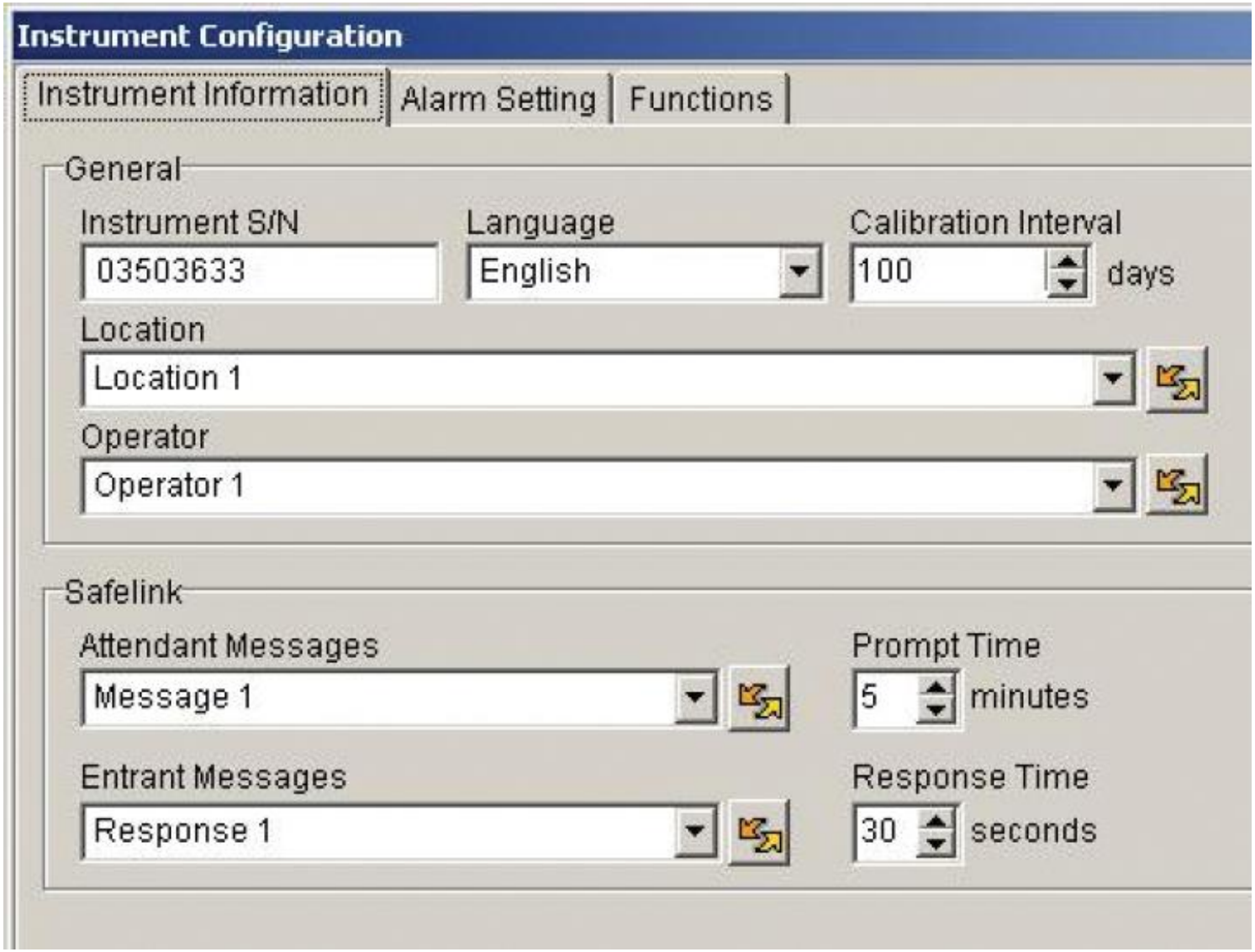
A prompt appears asking you to select whether you wish to load the configuration from a file or if you wish to download it from the instrument as shown in FIGURE 5-2.



BW Technologies by Honeywell

Impact Configuration Utility

Honeywell



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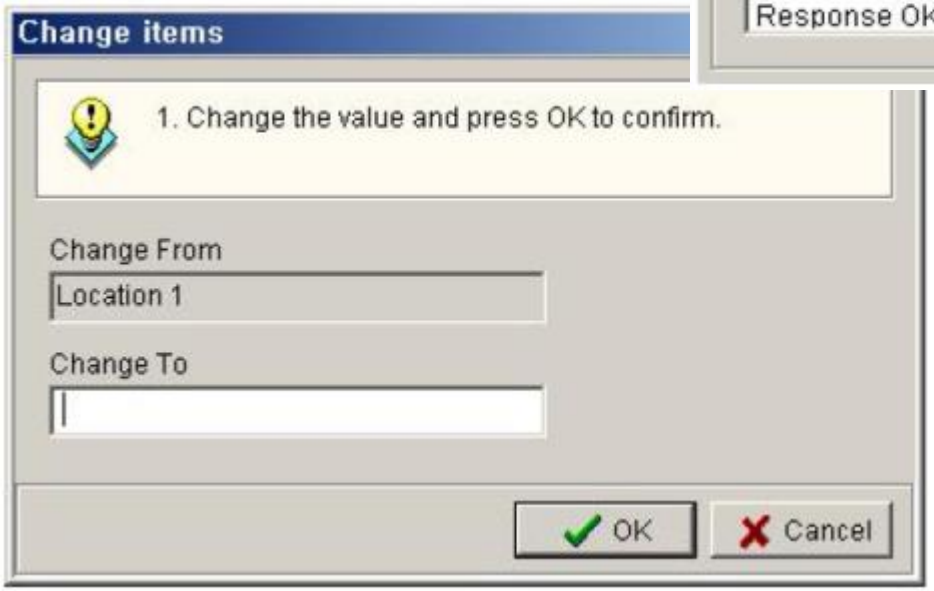
Impact Configuration Utility

Honeywell

Instrument Information
In the [Instrument Information] tab, it is possible to modify settings such as instrument
language, location and operator names, calibration interval, flammable gas tables, flammable standards, log options, instrument clock and SafeLink options.
The location, operator, flammable
clicking the change button ( ).

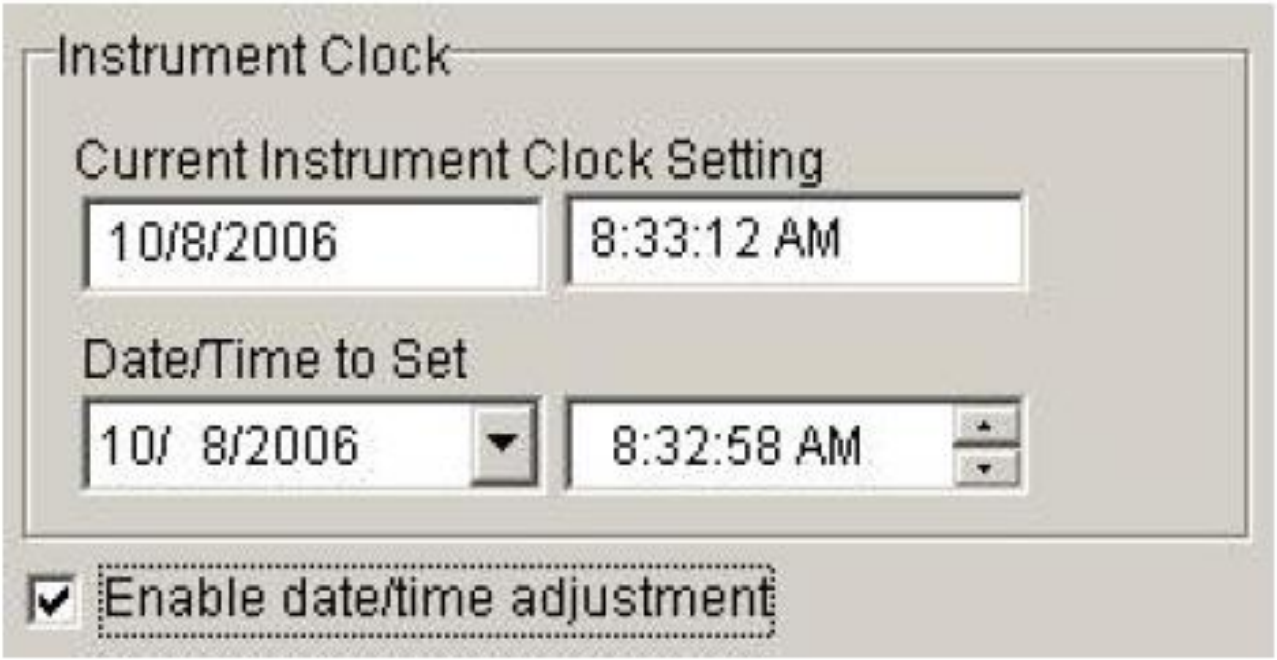


BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

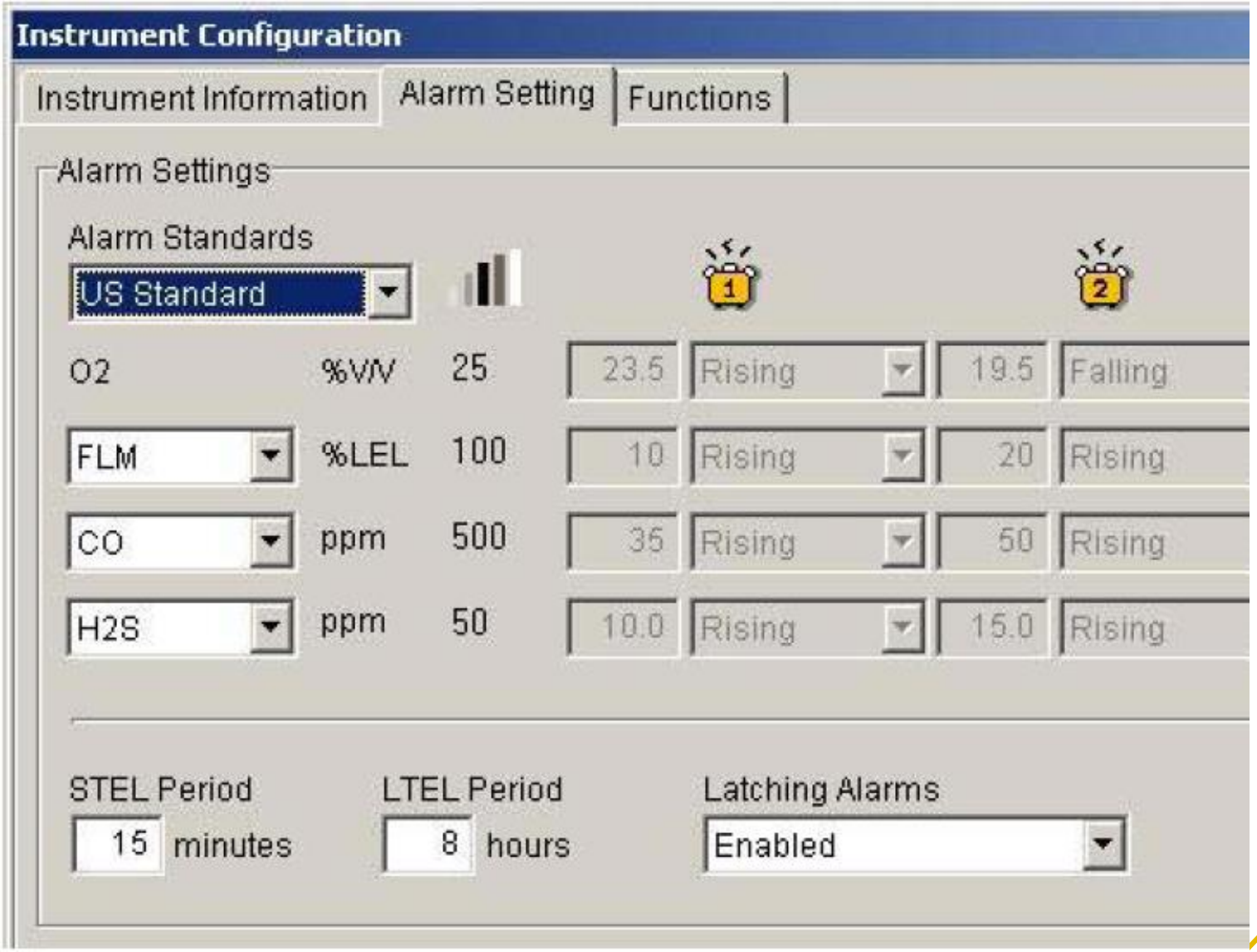
The PC's current date and time will be sent to the instrument if you upload the instrument configuration with this option checked.



BW Technologies by Honeywell

Impact Configuration Utility

Honeywell



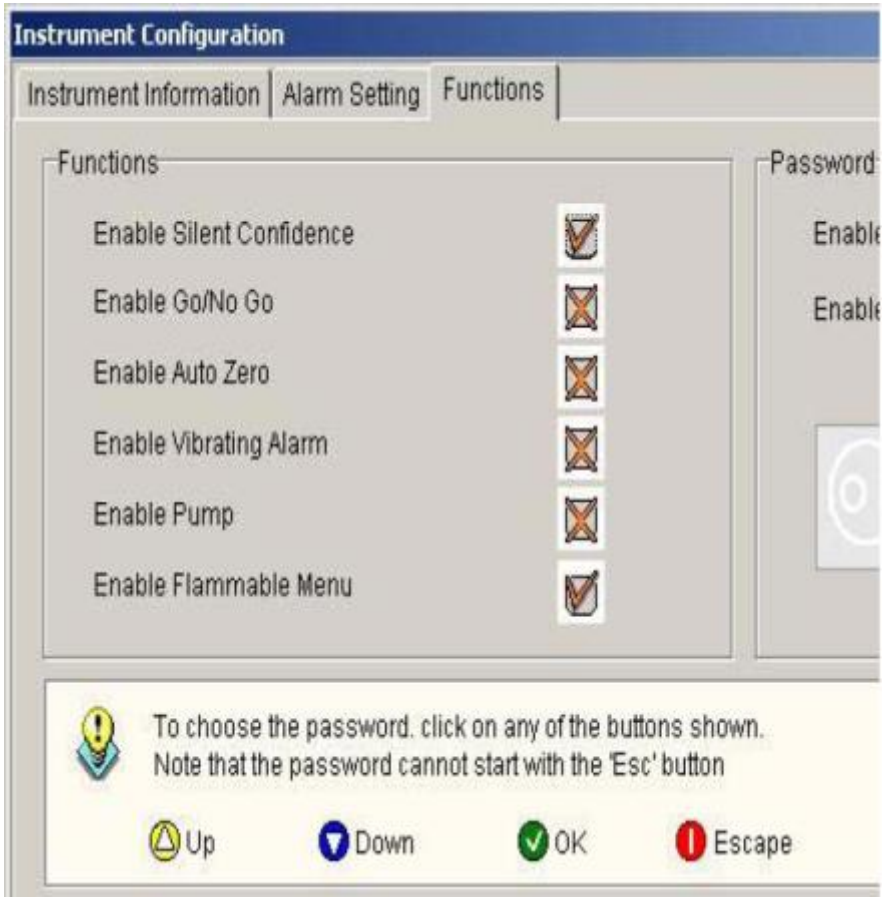
BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

Functions

- In the [Functions] tab, a user can enable/disable the functions of the instrument as follows:
  - Enable Silent Confidence
  - Enable Go/No Go
  - Enable Auto Zero
  - Enable Vibration Alarm
  - Enable Pump
  - Enable Flammable Menu
  - Enable Calibration Password
  - Enable Switch-off Password



BW Technologies by Honeywell

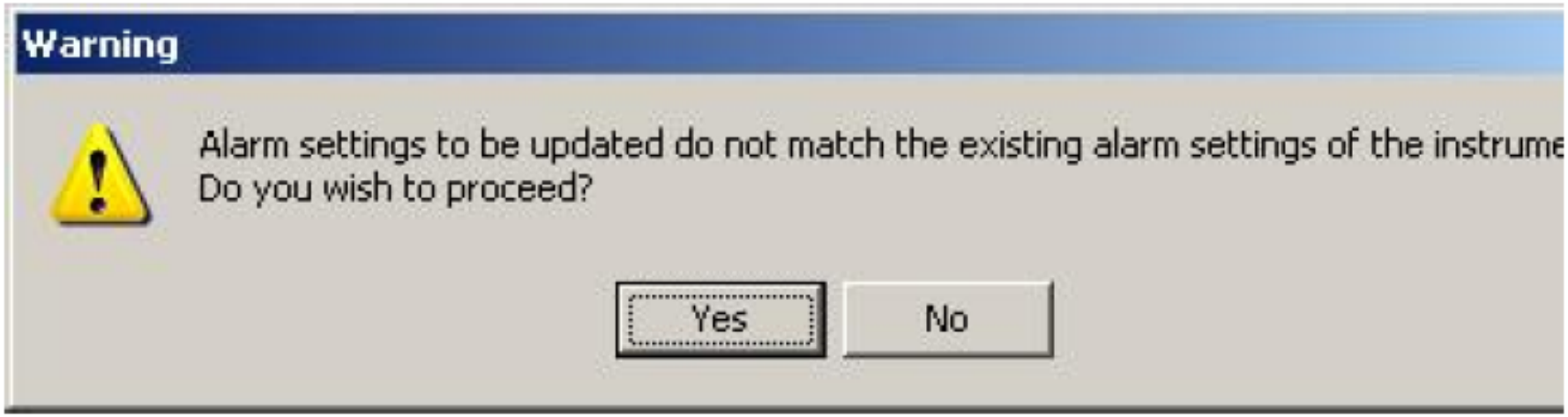
Impact Configuration Utility

Honeywell

Uploading a configuration to the Instrument

Once modification of the configuration is complete, click on the Upload button to send the changes to the instrument.

If the alarm settings do not match the existing alarm settings of the instrument, a warning prompt appears asking you that you wish to proceed as shown FIGURE 5-13.

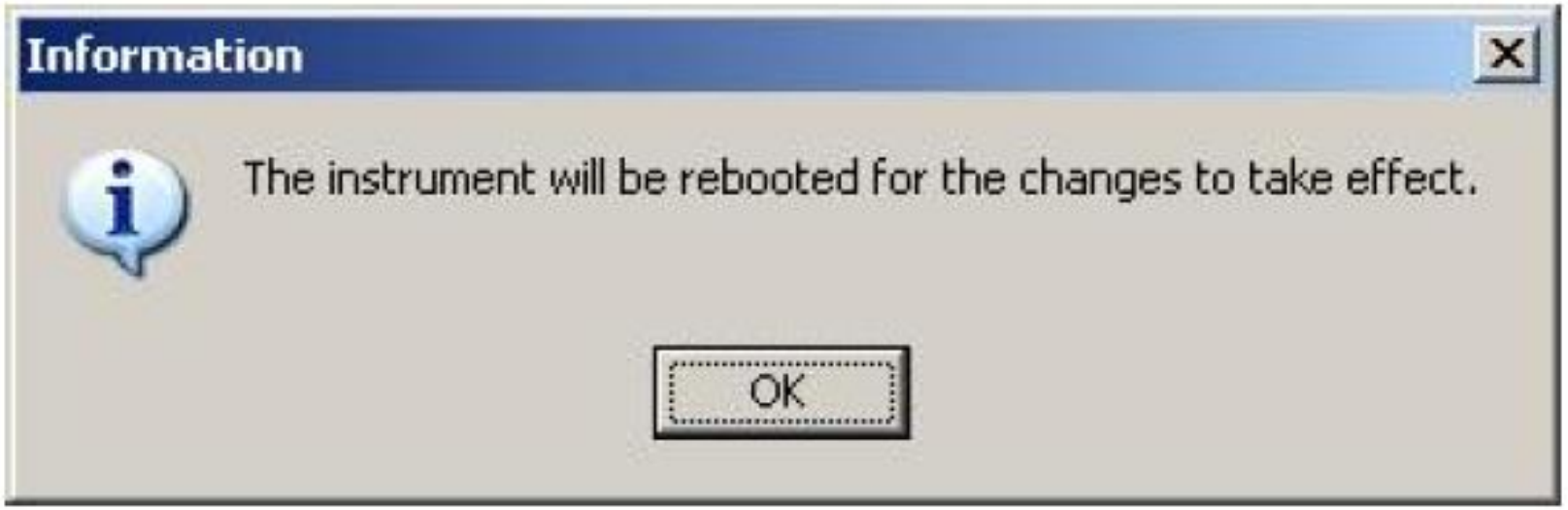

Warning
Alarm settings to be updated do not match the existing alarm settings of the instrume
Do you wish to proceed?
Yes
No

BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

When the changes are sent to the instrument, a prompt appears stating that the instrument will be rebooted as shown in FIGURE 5-13



BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

Downloading the Data

To download the logged gas readings, event records and calibration history from the instrument:

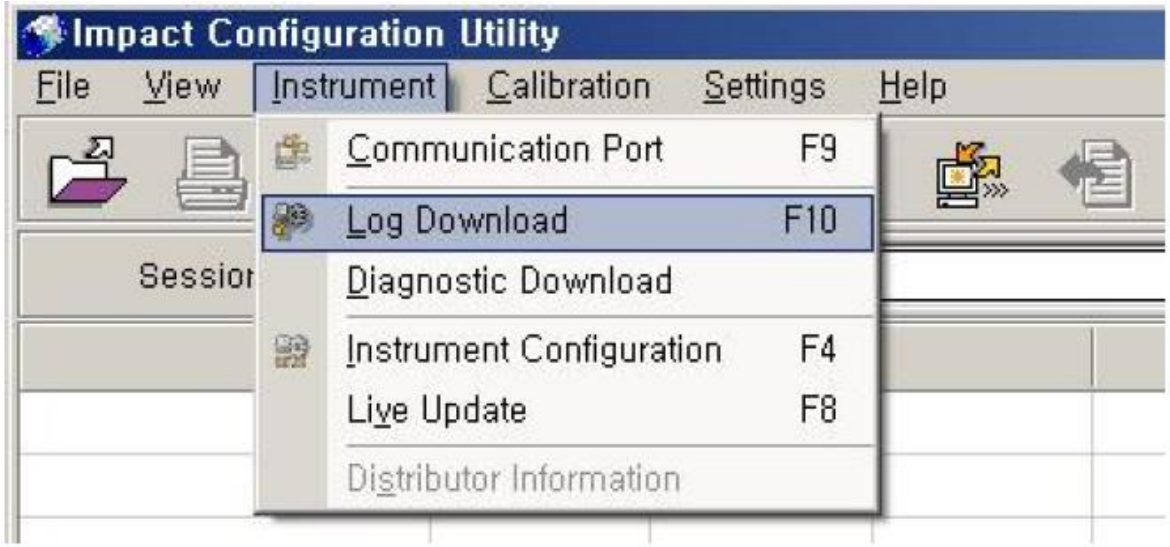


FIGURE 3-10 Log download Menu

1. While the Impact is switched on and sitting on the Base Station, use the [Instrument >Log Download command] or click on the Log Download button .

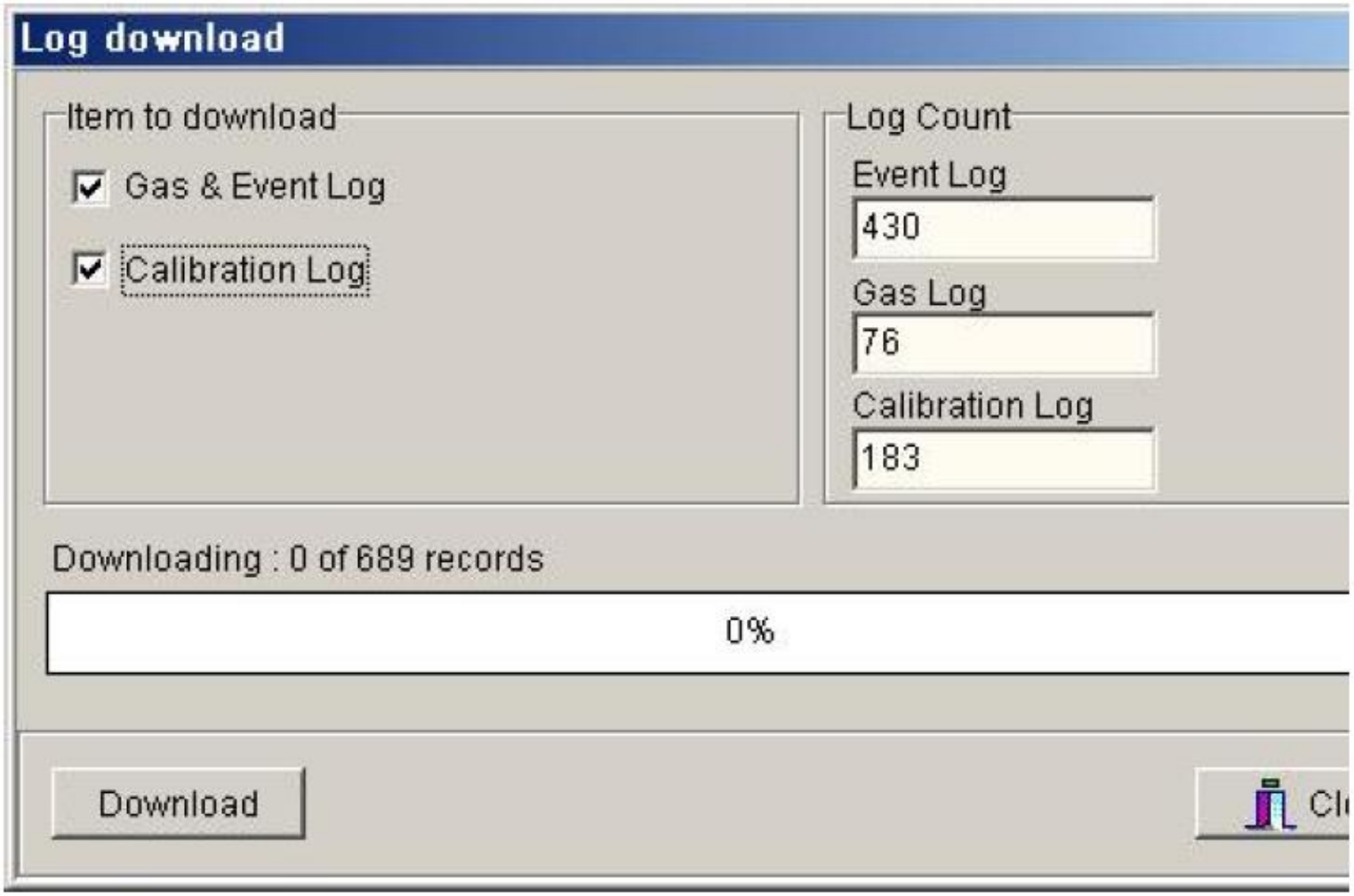
2. A download window appears showing numbers of each log as in FIGURE 3-11

BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

Either gas/event, calibration data or both can be selected for download.

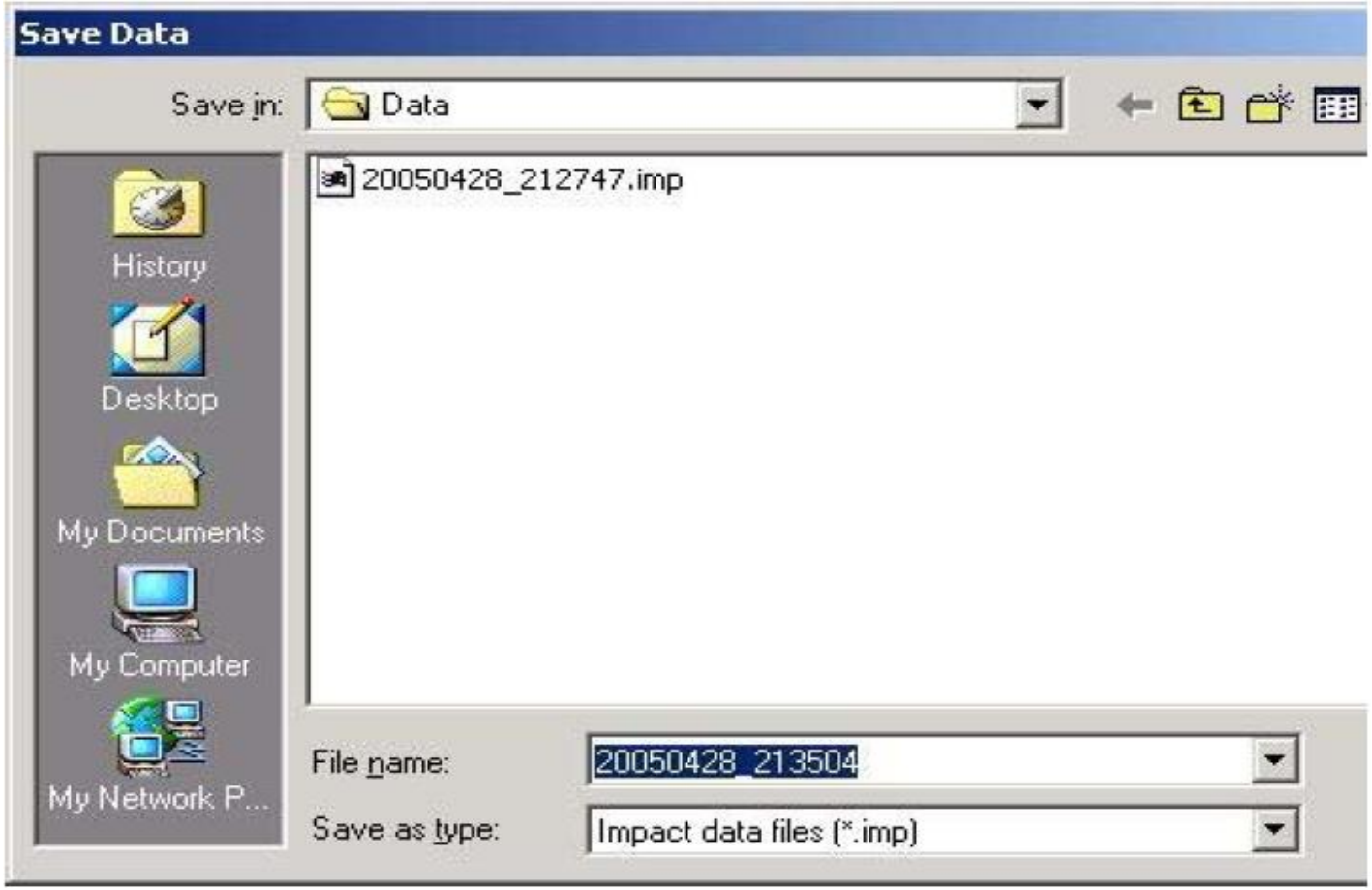


BW Technologies by Honeywell

Impact Configuration Utility

Honeywell

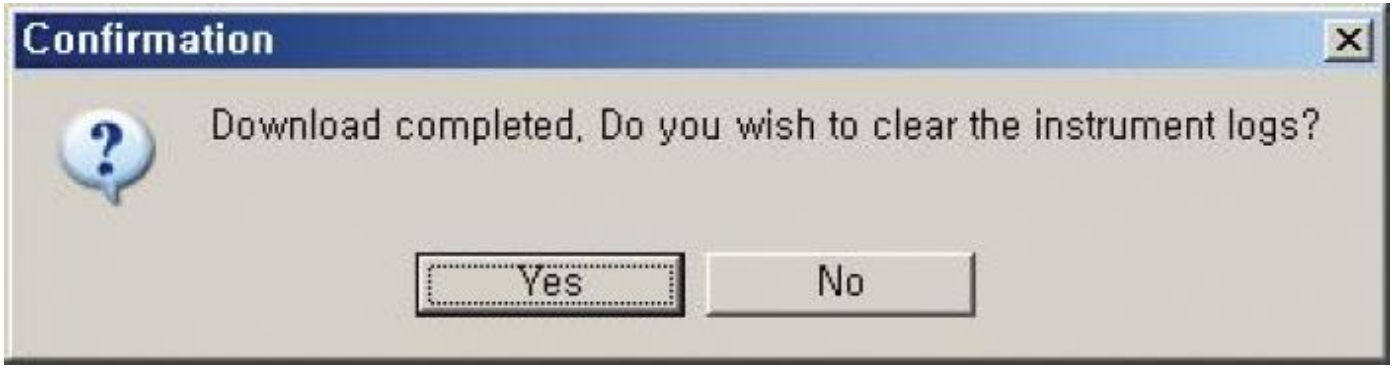
After the download has been completed, a window appears to prompt user to save the downloaded data to the computer.
Enter a file name, if desired, and click the Save button.



BW Technologies by Honeywell

Impact Configuration Utility

Honeywell



BW Technologies by Honeywell

Exporting a Summary Report

- To export a summary report:
  1. Use the [File->Export Data] command
  2. Select Export Summary Report and click on the Print button if you wish to print the summary report
  3. Otherwise select Export Summary Report and click on the Export button if you wish to export the summary report into a .CSV file. A dialog box appears asking you to enter the file name.
  4. Enter the correct file name and click on the Save button
  5. Open the summary report and you will find the following information

Note:

The CSV format is supported by most spreadsheet programs, including Microsoft Excel.

Impact Configuration Utility

Honeywell

Exporting a Summary Report (cont'd)

- Operator
- Date and time when the summary report is generated
- Instrument's serial number
- Date of last calibration
- Calibration due date
- Number of valid readings for the flammable/IR channel and toxic channels
- Usage pattern
- Number of alarm events
- Time & alarm event data (including the session ID, session date, turn-on time, turn-off time, time stamp for the first alarm in the session and alarm types for each channel where applicable ('L' for immediate low alarm and 'H' for immediate high alarm))
- Peak level data (including the session ID, the maximum readings for all channels and the minimum reading for O2 only)
- Alarm threshold data (including the session ID and the alarm levels for each channel)

BW Technologies by Honeywell

Cost of Ownership

Honeywell

Cost of Ownership - 1 Instrument	Honeywell Impact Pro	MSA Orion	MSA ALTAIR 4-5	MSA Watchman
Cals / Gas Cylinder - 34 Liter	227	23	68	19
Gas Cost / Cal - List Pricing	$0.85	$8.82	$2.94	$14.95
Gas Cost / Bump Test - List Price	$0.28	$0.74	$0.74	$3.74
Total Bump and Cal Gas Cost Over 10 Yrs	$758	$2,978	$2,272	$11,548

BW Technologies by Honeywell

Sensor Roulette

Honeywell

- Sensor Roulette
  - Fleet management strategy where
    - Sensors are replaced 1 at a time
    - Reactively only after failure
  - One by one replacement approach guarantees each instrument will soon include everything from new and old, dead & dying sensors
    - Over time, sensor failures become routine
    - Each time triggering inefficient and costly repair cycle that can take weeks
    - In this approach, a 4 gas user with 100 units is actually managing life cycles of 400 sensors

Honeywell Impact Pro

Honeywell

- Solution proactively replaces all 4 sensors every 2 years whether they need to be or not
  - By replacing all sensors every 2 years proactively, before failure and at user's convenience
    - Large unit fleet always has sensors of same age
  - As such, an Impact user with 100 units manages only 100 4 gas sensor cartridges
    - 75% reduction in number of sensors to manage
  - Each time a sensor fails
    - Entire cartridge is replaced with 4 new sensors - usually under warranty
  - Ensures customer's fleet will always have same age sensors
    - No more costly single sensor replacements.

BW Technologies by Honeywell

EC-P2

BW Technologies by Honeywell

Honeywell

EC-P2 Portable Single Gas with Pump

Honeywell

Gas	Range
Alcohol	0-500 ppm
Ammonia (NH_3)	0-500 ppm
Ammonia (NH_3)	0-2,000 ppm
Bromine (Br_2)	0-5 ppm
Carbon Monoxide (CO)	0-1,000 ppm
Chlorine (Cl_2)	0-5 ppm
Chlorine (Cl_2)	0-200 ppm
Chlorine Dioxide (ClO_2)	0-5 ppm
Fluorine (F_2)	0-5 ppm
Formaldehyde (CH_2O)	0-200 ppm
Hydrogen (H_2)	0-2000 ppm
Hydrogen Chloride (HCl)	0-200 ppm
Hydrogen Peroxide (H_2O_2)	0-200 ppm
Hydrogen Sulfide (H_2S)	0-200 ppm
Nitric Oxide (NO)	0-500 ppm
Nitrogen Dioxide (NO_2)	0-200 ppm
Oxygen (O_2)	0-25%
Ozone (O_3)	0-5 ppm
Sulfur Dioxide (SO_2)	0-500 ppm

- Single gas portable with internal sampling pump
- Alkaline and rechargeable battery operation
- Data logging and RS232 output
- Wide variety of exotic Industrial toxics with exchangeable SmartCell technology
- Ideal for emergency response and Industrial Safety monitoring and leak detection spotting
- Quick change sensors

- **In the box**
  - **Instrument**
  - **Sampling wand**
  - **CD User manual and Datalogging Software**

BW Technologies by Honeywell

EC-P2 Product Description

Honeywell

- Portable, battery operated instrument
- Smart cell technology
- Optional sensor keeper
- Two battery system
  - "C" size Alkaline in handle – primary power, 48 hours
  - Internal rechargeable NiCad – standby power, 6 hours
- Instrument may be operated when connected to charger
- Datalogging to Excel Spreadsheet
- 0-1.0 VDC analog output
- Sampling mode
- Display - Backlit LCD
- Pump – Miniature internal diaphragm type, flow rate 0.5 SCFH

BW Technologies by Honeywell

Available Gases

Honeywell

Gas	Min Range	Max Range	Resolution
Alcohol	0-50 ppm	0-500 ppm	1 ppm
Ammonia	0-50 ppm	0-500 ppm	1 ppm
Ammonia	0-500 ppm	0-2000 ppm	1 ppm
Bromine	0-1 ppm	0-5 ppm	0.01 ppm
Chlorine	0-5 ppm	0-100 ppm	0.1 ppm
Chlorine	0-1 ppm	0-5 ppm	0.01 ppm
Chlorine Dioxide	0-5 ppm	0-5 ppm	0.1 ppm
Carbon Monoxide	0-50 ppm	0-1000 ppm	1 ppm
Ethylene Oxide	0-20 ppm	0-200 ppm	0.1 ppm
Fluorine	0-1 ppm	0-5 ppm	0.01 ppm
Hydride Gases	0-500 ppb	0-2000 ppb	1 ppb
Hydrogen	0-500 ppm	0-2000 ppm	1 ppm

Gas	Min Range	Max Range	Resolution
Hydrogen Peroxide	0-10 ppm	0-100 ppm	1 ppm
Hydrogen Sulfide	0-10 ppm	0-200 ppm	0.1 ppm
Formaldehyde	0-20 ppm	0-200 ppm	0.1 ppm
Hydrogen Chloride	0-10 ppm	0-200 ppm	0.1 ppm
Hydrogen Cyanide	0-10 ppm	0-200 ppm	0.1 ppm
Nitric Oxide	0-50 ppm	0-500 ppm	1 ppm
Nitrogen Dioxide	0-10 ppm	0-200 ppm	0.1 ppm
Oxygen	0-5%	0-25%	0.10%
Ozone	0-5 ppm	0-100 ppm	0.1 ppm
Ozone	0-1 ppm	0-5 ppm	0.01 ppm
Phosphine	0-200 ppm	0-2000 ppm	1 ppm
Sulfur Dioxide	0-10 ppm	0-500 ppm	0.1 ppm

BW Technologies by Honeywell

Questions?

Honeywell